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ECONOMIC STRUCTURE AND ACTIVITIES

Editor

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FOREWORD

When we attained Independence in 1947, we took over a country whose economic development had been impeded and even arrested by almost two centuries of foreign domination and continuation of feudal relationships. Under the leadership of Jawaharlal Nehru and inspired by his vision and noble ideals, the country adopted the method of planned development based on modern science and technology to move towards the attainment of social justice. Through a series of Five-Year Plans, major changes have taken place in our economy and society and the country has become largely self-reliant. Foundations have been laid for building the edifice of socialism. In this, the third Volume of the Gazetteer of India entitled "Economic Structure and Activities", an attempt has been made to tell the story of transition of an old civilization to a new nation, of the change from the traditional to a modern economy.

The contributors to this Volume are men of distinction in their chosen fields. They have lent to this work the benefit of their profound scholarship. I hope this Volume of the Gazetteer will be welcomed by all who are interested in the economic life of the people and the impressive strides our economy has made since Independence, in spite of many hazards and obstacles.

S. Nurul Hasan
Minister of Education,
Social Welfare and Culture

New Delhi
March 10, 1975

PREFACE

We are happy to present the third volume of the Gazetteer of India whose theme is the economic structure of India and all activity pertaining to the economic sphere. This volume, like the previous volumes in the series, follows an entirely new scheme of treatment which is more systematic and more informative than the relevant volume of the Imperial Gazetteer of India. There were only 10 chapters in the volume "Economic" of this series and a chapter each had been devoted to such subjects as posts and telegraphs, railways and roads, famines and forests. All these subjects have now been dealt with in a more systematic manner under appropriate chapter headings. The present volume consists of 19 chapters which cover almost all important aspects of our economic life. Besides a survey of the country's natural resources, this volume deals with such important topics as community development, banking and money market, external resources, consumption and welfare, plans and prospects, etc. In the preceding volume on 'History and Culture' we have dealt with some aspects of economic life up to 1947. In the present work we take note of manifold developments in different spheres of economy after independence.

In view of the importance of this volume for a developing country like India, the Central Advisory Board for Revision of Gazetteers appointed a sub-committee of eminent economists to prepare the draft plan. Prof. V. K. R. V. Rao was the Chairman of this committee. The other members were Shri Asok Mitra, Dr. Bhabatosh Datta and Prof. B. D. Bhargava with Editor (Gazetteers) as Member-Secretary. The plan drawn up by the Sub-Committee was submitted to the Advisory Board which accepted it with minor modifications. Eminent scholars in different fields were appointed as contributors to the various chapters of this volume. We are grateful to them for sparing time in spite of their pre-occupations for contributing to the volume. The pace of economic development was so rapid that the facts recorded in the chapters became outdated in a very short period. The chapters, therefore, had to be revised and brought up-to-date as far as possible. At the suggestion of Prof. S. Nurul Hasan, Chairman, Advisory Committee for Revision of Gazetteers, a chapter was added at the end to take note of the latest developments in our economy Shri E. P. W. da Costa has kindly gone through the volume updating the contents at several places.

The economy of India in 1947 was in poor shape. While production, particularly in the agricultural field, had suffered a decline, the rate at which the population had grown in the three decades prior to independence was noticeably rapid. No attempt had been made to tap and

mobilize land resources and as village industry had decayed, artisans switched over to agricultural labour in large numbers. The country's agricultural economy received a severe jolt following partition, as productive areas were transferred to Pakistan. The situation was aggravated further by the inflow of millions of displaced persons from Pakistan into the country. All around, there were shortages of foodgrains, cotton and jute, to cite a few instances. Thus, Indian economy, to quote Prime Minister, Smt. Indira Gandhi, sought "to bridge, in a matter of decades, the gap created by a century and more of stagnation". The national economy had to be rebuilt from scratch through a series of Five-Year Plans.

Planning for over two decades between 1950-51 to 1972-73 has yielded dividends. This can be seen in the doubling of the net domestic production. The infra-structure for economic development — through water and power, transport and science and technology — has been strengthened. Foreign exchange reserves, which were as low as Rs. 298 crores in mid-sixties, showed an encouraging rise, touching the figure Rs. 1,056 crores in July, 1974. There has been a great rise and a noticeable diversification in industrial production, of products ranging from simple consumer goods to a variety of sophisticated machinery manufactured indigenously. The public sector plays a dominant role with increasing investment in Central Government undertakings. The 1970-71 record in the output of foodgrains, 108 million tonnes, was almost double that of the output in 1950-51, which was 56 million tonnes. In spite of the food deficits in 1973, due to the failure of monsoons, the per capita availability of foodgrains has been more than maintained. The following pages unfold the story of the struggle of an emerging nation in a state of transition from the traditional to modern economy.

I would like to take this opportunity to thank Prof. S. Nurul Hasan, Minister of Education, Social Welfare and Culture, Shri K. N. Channa, Education Secretary, and Shri Mohan Mukerji, Additional Secretary, Department of Culture, who have been taking keen interest in this work.

New Delhi
March 10, 1975

P. N. Chopra

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CHAPTER I*

PLANNING FOR ECONOMIC DEVELOPMENT

I. Concept of Planned Economy and Welfare State

In India the movement for political advance was always linked up closely with ideas of social and economic development; and the national leadership was conscious of the importance of planning for raising standards of living. Leading public men like Dadabhai Naoroji (1825-1917), M. G. Ranade (1842-1901) and R. C. Dutt (1848-1909) wrote and spoke extensively on social and economic problems. Their main theses were the growing poverty of the people and the recurrence of famines which they attributed to the defective land revenue policies of the government, the cost of administration, deficits in the balance of payments, and generally to policies framed not in the interests of India but those of Britain. It was their considered view that no solution could be found for the social and economic backwardness of India by the British Government pledged to a policy of *laissez-faire*, but that only a national government which actively promoted development by direct government action could bring about improvement in living standards.

As part of the Montague-Chelmsford Reforms following the First World War, 'nation-building' activities like local self-government, agriculture, co-operation and education were entrusted to ministers responsible to provincial legislatures. But this constitution worked only in some of the provinces and, even in those, no national policies could emerge owing to financial and other limitations. Further constitutional discussions followed with the Simon Commission and during the Round Table Conferences. The resolutions of the Indian National Congress from 1929 onwards emphasized the need "to make revolutionary changes in the present economic structure of the society and to remove grave inequalities in order to remove poverty and ameliorate the condition of the masses." A resolution passed in 1931 stated that "political freedom must include real economic freedom of the starving millions" and set out the fundamental rights which, from this point of view, should be included in the Constitution.

The Government of India Act of 1935 introduced provincial autonomy. This led to the formation of Congress governments in eight Provinces. Soon after this, in August, 1937, the Congress Working Committee passed a resolution suggesting that an inter-provincial committee of

* This chapter was originally written by late V. T. Krishnamachari in 1966.

experts should be set up to consider "urgent and vital problems, the solution of which was necessary to any scheme of national reconstruction and planning" and "to suggest how and in what order those should be tackled". This was followed later in the year by the constitution of the National Planning Committee of which Jawaharlal Nehru became Chairman. The Committee consisted of 15 members including well-known industrialists, economists, financiers, professors and scientists in addition to representatives of the provincial governments (the non-Congress Provincial Governments of Bengal, the Punjab and Sind also co-operated) and those of the Indian States of Hyderabad, Mysore, Baroda, Travancore and Bhopal.

Jawaharlal Nehru has reviewed the work of the Committee in *The Discovery of India.* Though the view was held that "planning under a democratic system should be considered not merely from the point of view of economics but cultural and spiritual values and the human side of the life", and that "such planning could only take place in a free National Government strong enough to be in a position to introduce fundamental changes in the social and economic structure", it was found that the Committee could formulate useful programmes by considering each individual problem in concrete terms. The Committee decided that it would be practical to aim at a minimum increase of 200 to 300 per cent in 10 years, of the per capita national income as it then stood—Rs. 65 for the country as a whole and somewhere around Rs. 35 for rural areas. Along with this, certain important objectives were borne in mind—increase in agricultural and industrial production; reduction of unemployment; liquidation of illiteracy; increase in public utility services; provision of medical facilities and increase in the average expectation of life. Emphasis was laid on heavy and basic industries as strategic factors for the development process. From the point of view of employment, it was felt that cottage industries should also be encouraged. The improvement of agriculture, which was the mainstay of the people, had necessarily to be given high priority.

Twenty-nine subcommittees were formed to deal with specific problems. In these were about 350 members, many of whom were specialists in their subjects. The work of the Committee was interrupted when the war broke out and many of the members including the chairman were arrested. Between 1940 and 1945, the Committee had only a nominal existence. A series of valuable reports were, however, published which brought together the constructive thinking done by the Committee and the subcommittees and the material collected in the course of their work. The importance of the National Planning Committee lies not so much in these reports as in the wide interest it created throughout the country in co-ordinated planning as the only means of bringing about a rapid

increase in standards of living and its emphasis on the need for fundamental changes in the social and economic structure.

In the course of the war, serious short-comings became apparent in the country's economy, and in June, 1941, the Government of India took up the consideration of plans for post-war reconstruction. It was, however, only in 1944 that a Planning and Development Department was created under a separate member of the Viceroy's Executive Council, for organizing planning work in the country and co-ordinating it. More than 20 panels of experts were set up and the Central departments and the Governments of Provinces and Indian States were invited to prepare detailed plans for industrialization. It was estimated that about Rs. 1,200 crores would be available as resources for plans. The plans actually put forward were estimated to cost Rs. 1,300 crores. When planning had advanced and sufficient experience had been gained, the Government of India found it necessary to explain to the country their industrial policy. Accordingly, the 'Statement of Government's Industrial Policy' was issued on April 26, 1945.

This was an important pronouncement, as the last one to be made by a government responsible to the Secretary of State for India. It marked a complete departure, as a result of the lessons of the war, from the policies followed until then. The statement began by pointing out how the continuance of the existing policy of *laissez-faire* would not meet the objectives of sound post-war development.

> "Though industrially stronger than in 1939, India will find herself in a position of relative inferiority. In other countries technological advance has been immense and, as a result of the nature of modern warfare, there has been a striking increase in the total volume of skilled industrial labour. If India is to make rapid headway and if the standard of living of the masses is to be effectively raised, a vigorous and sustained effort is necessary in which the State no less than private industry must take part."
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> It then proceeded to say: "The Government of India have decided to take positive steps to encourage and promote the rapid industrialization of the country to the fullest extent possible. They attach particular importance to the development of those industries which constitute the foundation of modern industrial life, such as iron and steel industry, the heavy engineering industries, the machine tool industry, the heavy chemical industry and so on. But while the development of these industries must take high priority, it must form part of a balanced plan in which due place is given to consumption goods industries. It is clear that if progress is to be achieved, the development of industry must be planned by Government in co-operation with industry and every effort made to make the

Plan effective. Industrial development, however, cannot stand itself. There should be balanced development in industry, agriculture and the social services and inside the field of industrial development a balance should be kept between the manufacture of capital and consumer goods."

The resolution then pointed out that important industries must be brought under 'central control' in the interests of co-ordinated development. Twenty industries were specified including iron and steel, aircraft, ship-building and marine engineering, heavy machinery, heavy chemicals and fine chemicals, cotton and woollen textiles, cement, etc. In addition to ordnance factories, public utilities, generation of electrical power and railways, which were largely State-owned and State-operated, basic industries of national importance could be promoted by the State if found necessary. The State was also to have the power to license industrial undertakings, the object being to prevent concentration of industries in certain areas and to divert private capital to schemes deserving priority. The resolution finally envisaged controls for the achievement of the following objectives:

"(i) to secure balanced investment in industry, agriculture and the social services;

(ii) to secure for industrial workers a fair wage, decent conditions of work and living and a reasonable security of tenure;

(iii) to prevent excessive profits to private capital;

(iv) to ensure the quality of industrial products in the interest of both internal and external markets;

(v) to ensure that unhealthy concentration of assets in the hands of a few persons or of a special community would be avoided: 'this may be secured by a judicious exercise of controls, such as capital issues control and the licensing machinery for the regionalization of industry';

(vi) to acquire necessary technical training of personnel and to extend the benefit of such training to minorities and backward communities".

The Planning and Development Department was abolished in 1946.

When the Government of India was formulating these policies, prominent industrialists of Bombay published a plan in 1944 in which they envisaged the doubling of per capita income over a 15-year period and an outlay of Rs. 10,000 crores. The Bombay plan recognized that during the period of planning, controls might have to be instituted similar to those which were in force under war conditions. The plan also defined the respective fields of ownership, control and management of economic enterprises by the State. In its view, State ownership should have a place in two categories of cases: "(i) where the State finances an

enterprise which is important to public welfare and security, and (ii) where the State ownership is a necessary means of enforcing State controls". As for the planning organization, it proposed that a national planning committee representing different interests should be set up to prepare a detailed plan and that the execution should be the responsibility of a supreme economic council under the Central Government.

In October, 1946, the Government of India appointed a committee called the 'Advisory Planning Board' to review the planning that had already been done by the government, the work of the National Planning Committee, and other plans and proposals for planning and to make recommendations regarding the future machinery of planning and also in regard to objectives and priorities. This Board made recommendations for the setting up of a Planning Commission and its composition and functions.

Prior to independence, there was thus a large measure of agreement in the nation—the Government of India under the Secretary of State, the Indian National Congress, prominent industrialists and others on the following principles: (i) There should be central planning, in which the State should play an active part, for social and economic development to bring about a rapid rise in standards of living; (ii) There should be controls and licensing in order, among other things, to direct investments into the desired channels and ensure equitable distribution; (iii) While there should be balanced development in all sectors of the economy, the establishment of basic industries was specially important. In this, State-owned and State-managed enterprises have an important role There were, however, differences of approach in regard to the specific fields to be allocated to the public and private sectors.

The plans prepared by the Government of India, the Bombay industrialists and others suffered from serious limitations. When they were prepared, it was known that transfer of power was to take place quite soon; but the exact form of the future government was not known. The plans consisted largely of proposals of experts which were not effectively co-ordinated. They had no social philosophy behind them. With the advent of independence, they become inadequate, though the thinking that had taken place on planning generally and its techniques was useful for the future.

Constitutional Background: Though the Constituent Assembly met in December, 1946, its real work, apart from the 'objectives resolution' began after the discussions in regard to transfer of power were concluded. These discussions eventually resulted in independence on 15th August, 1947 on the basis of the separation of the predominantly Muslim areas in the eastern and western regions and their formation into a separate unit, Pakistan. After partition, elections in the areas that constituted

India were completed and the newly elected representatives joined the Constituent Assembly. With the advent of Independence, the Constituent Assembly became a sovereign body representing the people of India, with functions exactly the same as those of the Constituent Assemblies in other countries. The Constituent Assembly had to face more complicated problems than similar assemblies in other countries in the past.

There were the difficulties inherent in the framing of a constitution which would meet the needs of over 360 million people differing in race and religion and speaking different languages, and with standards of living among the lowest in the world. Such a constitution had, besides, to bring into a common political and economic framework the 'Provinces' and the 'Indian States'. Moreover, the war had made a deep impact on India. India had recruited, trained and sent nearly two million men to the several theatres in the war—'the largest volunteer army in history'. Supply missions and operation commands for South-East Asia were established and worked all through the war in the country. India had thus a crucial role in the war efforts in this region. Owing to these causes, the economy of the country was subjected to serious stresses and strains and inflationary pressures were generated. More than this, there was the ferment in people's minds. Hopes and aspirations were raised for a better social order due to the war aims proclaimed by the Allies—pronouncements like the Atlantic Charter (August, 1941) and the Philadelphia Declaration (May, 1944) gave promise of intensive efforts by governments for promoting plans for social security, raising human dignity and improving welfare. Moreover, while the talks for the tranfer of power were in progress, grave communal disorders occurred in parts of the country in the wake of partition which involved the loss of many lives and the uprooting of several millions of people from their homes in the western and eastern regions, creating intractable problems of resettlement and housing.

These incidents shook the nation to its depths. An extremely difficult human problem faced the Constituent Assembly—how to assist the revolutionary urges and hopes and aspirations for a better life felt by over 360 million people to find constructive expression in a free society. Everywhere in Asia and Africa and other under-developed regions, there was a resurgent nationalism, with people taking pride in their past history and achievements and seeking to take an equal place among the free nations of the world. This had its economic side also. These nations saw the steadily widening gulf between their living standards and those of the developed countries. They were not prepared to accept this state of things as inevitable. They knew that science and technology could assist them to modernize their economies and were determined to make efforts to achieve, in a comparatively short period, rates of growth which took a much longer time in the past.

In the case of India, there were also other factors mentioned already—its special part in the war, the coming of independence and the aftermath of partition. Further, the stage of development India had already reached held out hopes of much more rapid advance than ever before. Reviewing the entire situation, in the light of the social philosophy evolved over decades as already explained, the Constituent Assembly came to the conclusion that to guide this 'revolution of rising expectations' into constructive channels, India should make determined efforts, through carefully planned large-scale social and economic development and the application of modern scientific and technological improvements, to bring about a rapid and appreciable rise in the standards of living of the people, with the maximum measure of social justice attainable. Solutions for the pressing problems of resettlement of displaced persons—while the Constituent Assembly was in sesson between five and six million persons had come into the country in the western and eastern regions—and of demobilized army personnel, the rehabilitation of the economy run down by the war and the economic dislocation due to partition could be found only in this wider setting. In other words, India should become a welfare State.

The provisions of the Constitution have been described elsewhere. It is sufficient here to bring out three of its features which are important for national planning. First, 'Economic and social planning' is a concurrent subject. Also, in framing lists of 'Union', 'State' and 'Concurrent' subjects and the other provisions, the Constitution vests power in the Union to ensure co-ordinated development in essential fields of activity while preserving the initiative and authority of the States in the spheres allotted to them. Secondly, the Constitution includes provisions for promoting co-operation on a voluntary basis between the Union and the States and among States and groups of States in investigation of matters of common interest and in legislative procedures and in administration, thus avoiding the rigidities inherent in federal constitutions (Articles 249, 252, 257, 258, 258-A, and 312). In other words, the objective is co-operative federalism. Thirdly, the Constitution also sets out in broad outline the pattern of the welfare State envisaged and the fundamental principles on which it should rest.

Pattern of Welfare State: The importance attached by the Constituent Assembly to the inclusion in the Constitution of basic ideas on the pattern of the welfare State which the nation should establish can be seen from the long discussions that took place on the relevant portions of the Constitution: the Preamble, Fundamental Rights (Articles 12 to 35), Directive Principles of State Policy (Articles 36 to 51), and the special provisions for Scheduled Castes and Tribes and Backward Classes (Articles 330 to 342). The keynote was struck in one of Jawaharlal Nehru's speeches

in the Constituent Assembly. In this, the two sides of this problem were emphasized. The first was that India should move into the modern world of science and technology for bringing into existence a social order in which there could be a rapid rise in standards of living with equitable distribution and equality of opportunity. The second was that the new social order should be built on the foundations of, and derive its strength from the nation's cultural heritage. The Preamble set out the basic objectives of the new social and economic order which the nation had 'solemnly resolved' to bring into existence, *viz.*, to secure to all its citizens 'Justice, social, economic and political; Liberty of thought, expression, *belief, faith* and *worship; Equality* of status and of opportunity and to *promote among them all* Fraternity assuring the dignity of the individual *and the unity of the* Nation.' The Fundamental Rights and the Directive Principles of State Policy set these objectives out in greater detail.

While the Preamble emphasized the development of a free society based on the dignity of the individual in which there would be equality of status and opportunity and justice, social, economic and political, Article 38 defined the aim as follows: "The State shall strive to promote the welfare of the people by securing and protecting as effectively as it may a social order in which justice, social, economic and political shall inform all the institutions of the national life". In Article 39, stress was laid on the right to adequate means of livelihood equally for men and women (Article 39-a); equal pay for equal work for both men and women (Article 39-d); conditions of work ensuring health and strength (Article 39-e) and protection of children and youth against exploitation and against moral and material abandonment (Article 39-f). It is also laid down that the State should ensure that 'the ownership and control of the material resources of the community are so distributed as best to subserve the common good' (Article 39-b); and that 'the operation of the economic system does not result in the concentration of wealth and means of production to the common deteriment' (Article 39-c).

The duty is enjoined on the State that 'it should within the limits of its capacity make effective provision for securing the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement, and in other cases of undeserved want' (Article 41). The State should also 'secure just and humane conditions of work'; and 'secure to all workers—agricultural, industrial and otherwise—work, a living wage, conditions of work ensuring a decent standard of life and full enjoyment of leisure and social and cultural opportunities' (Articles 42 and 43). Particular stress is laid on special assistance to the weaker sections of the people, including the Scheduled Castes and Scheduled Tribes, with a view to promoting their educational and economic interests and to protecting them from social injustice and all forms of exploitation. In

regard to the rural economy, Articles 40 and 48 enjoin the application of modern scientific methods to agriculture and animal husbandry and the implementation of programmes and improvements through self-governing panchayats. Article 43 requires the promotion of cottage industries on an individual and co-operative basis.

The only Article in which a definite time limit has been fixed is Article 45 under which 'The State shall endeavour to provide, within a period of ten years from the commencement of this Constitution, for free and compulsory education for all children until they complete the age of fourteen years'. The programme laid down in this Article is of vital importance to the nation.

These general principles were given a more precise direction when Parliament accepted in December 1954 the socialist pattern of society as the objective of social and economic policy. The Second Five-Year Plan report explains this approach to planned development in the following terms: "Essentially, this means that the basic criterion for determining lines of advance must not be private profit, but social gain...Major decisions regarding production. distribution, consumption and investment—and in fact all significant socio-economic relationships—must be made according to social purpose. The benefits of economic development must accrue more and more to the relatively less privileged classes of society, and there should be progressive reduction of the concentration *of incomes, wealth and economic power. The problem is to create a milieu* in which the small man...is enabled to put in his best in the interests of a higher standard of life for himself and increased prosperity of the country .. The accent of the socialist pattern of society is on the attainment of positive goals, the raising of living standards, the enlargement of opportunities for all, the promotion of enterprise among the disadvantaged classes and the creation of a sense of partnership among all sections of the community. These positive goals provide the criteria for basic decisions... " India's Five Year Plans follow and are based on these principles.

Important principles of public social policy are embodied in Article 31 as amended. As India's Plans envisage a large extension of State activity in the economic field, the reconciliation of the claims of property with those of the community is left to Parliament in each case of nationalization on its merits. Assurance has been given in Parliament that the basic principles of 'justice, equity and good conscience' would guide the Union and State Governments in fixing compensation. Moreover, laws coming under the following categories cannot be called in question on the ground, among others, of property rights being infringed:

(i) land reform laws for defining tenancy rights, modifying rents, etc;

(ii) company reform laws containing provisions for modifying rights

of managing agents, secretaries and treasurers, managing directors, etc.;

(iii) laws for extinction or modification of rights under lease of minerals or mineral oil where such rights impose undue burdens on the community or are opposed to national interests in any other manner; and

(iv) laws for the taking over of property by a State for a temporary period in the public interest to secure proper management.

Laws falling under these heads have an important place in programmes for social and economic welfare. Their aim is to prevent abuses and bring about institutional and other changes which are essential for speeding up the pace of development.

II. The Planning Commission

Composition and Functions: The industrially advanced democracies in North America and Western Europe have accepted the idea of planning, in some form or other, in order to secure high rates of economic growth. In all of them, planning is restricted to specific fields and has limited objectives: and the planning authority advises governments responsible to Parliaments. In Communist countries, there is comprehensive planning of the entire economy and the planning body has a dominant position, as an integral part of the executive machinery, with power to supervise implementation. India's plans cover a wider field than the plans of the advanced democracies though they are less comprehensive than those in the Communist countries. The planning body in India is advisory and plans have to be accepted by Parliament before they become effective. Implementation also rests with the Union and State Governments. Planning in India has thus distinctive characteristics of its own. India has, therefore, to find by a process of trial and error its own solutions to questions of democratic planning—the composition of the Planning Commission and its relations with the Cabinets in the Union and the States—and strike its own balance between liberty and progress, central control and private initiative and national planning and local authority.

The Planning Commission was established by an order of government in March, 1950 which defines its functions. The order says:

"The Planning Commission will

(i) make an assessment of the material, capital and human resources of the country, including technical personnel, and investigate the possibilities of augmenting such of those resources as are found to be deficient in relation to the nation's requirements;

(ii) formulate a Plan for the most effective and balanced utilization of the country's resources;

(iii) on a determination of priorities, define the stages in which the Plan should be carried out and propose the allocation of resources for the due completion of each stage;

(iv) indicate the factors which are tending to retard economic development, and determine the conditions which, in view of the current social and political situation, should be established for the successful execution of the Plan;

(v) determine the nature of the machinery which will be necessary for securing the successful implementation of each stage of the Plan in all its aspects;

(vi) appraise from time to time the progress achieved in the execution of each stage of the Plan and recommend the adjustments of policy and measures that such appraisal may show to be necessary; and

(vii) make such interim or ancillary recommendations as appear to it to be appropriate either for facilitating the discharge of the duties assigned to it; or on a consideration of the prevailing economic conditions, current policies, measures and development programmes; or on an examination of such specific problems as may be referred to it for advice by Central or State Governments".

The Planning Commission consists of the Prime Minister as chairman, the Finance Minister and the Minister for Planning and some other Cabinet Ministers on a part-time basis and also full-time members. There is also a deputy chairman whose main function is to co-ordinate the work of the Commission. The deputy chairman is usually a full time member without parliamentary duties though there have been exceptions. The Commission works in close touch with the Union and State Cabinets and with full knowledge of their policies. At the same time, it is an autonomous body entitled to form its own views on important issues and place them before the governments. The Commission is also invariably consulted on changes proposed in social and economic policies. To ensure free and full exchanges of ideas, the Planning Commission has established a convention that it will not give publicity to differences of views between the Commission and the Union and State Governments. The link with the Union Cabinet also exists at the secretariat level. The Planning Commission is part of the Cabinet organization and the 'demand for grants' for the Planning Commission is included in the budget demand for the Cabinet Secretariat. The Commission has a staff of Secretaries and Advisers and also a research organization.

The duties assigned to the Planning Commission in the order quoted

above bring out the scope of the continuous studies it should undertake. It is obvious that, in important sectors, the Commission will have to plan for longer periods than five years and fit the five year plans into these long range programmes. Example of such sectors are: (i) General education based on free and compulsory education for boys and girls of age 6 to 14 upto and including university education, technical education of all grades and manpower requirements of projects and programmes; (ii) Assessment of natural resources, land and water resources, mineral resources, etc. and their conservation and utilization; (iii) Financial resources—internal and external—and price levels and consumption patterns; (iv) Studies of demands for commodities and products based on the anticipated growth in national income and other factors. Perspective planning has thus a major role and its techniques have to be progressively improved. The Commission has also to evolve criteria for fixation of priorities and the reconciliation of competing claims. It should also scrutinize projects and programmes from the economic and financial points of view. Other studies it has to undertake are:

(i) Policy reviews: The broad strategy of the Plans should be worked out along with long-term objectives and economic, fiscal, and other policies on which they should be based. Policies should also be worked out in regard to individual sectors of the economy.

(ii) Institutional changes and social change: Studies should be made of changes in the social order which are needed—land reforms, labour laws, etc., and of the changes that have to be brought about in attitudes and outlook.

(iii) Public co-operation: Studies should be made of the steps which should be taken for making the people feel a sense of participation in the Plans so that efforts on a national scale might be made for their implementation.

(iv) Administrative machinery: The changes in the administrative structure needed from time to time for efficient implementation of the Plans should be studied.

(v) Appraisal of progress: There should be appraisal of progress achieved from time to time with an analysis of the factors which hinder development. The Commission should recommend such adjustments of policies and improvements in administration as may be needed to secure successful implementation.

(vi) Evaluation and research: There should be evaluation of results from time to time; and research should be organized to study social and economic results of legislative measures and for other connected purposes.

In its work, the Commission obtains the assistance of the Union and

State Ministries including their technical experts. It has evolved arrangements to ensure that in the formulation of proposals for plans and in working out policies and programmes, consultations take place continuously with the Union and State Ministries, the Reserve Bank of India, organized bodies in different sectors and panels of experts as detailed below :—

(i) Union and State Governments: Consultations take place at the secretariat level as well as at the level of members of the Commission and Ministers. There is very close touch with the Ministry of Finance and Economic Affairs and the Reserve Bank of India. The Planning Commission has three 'Programme Advisers', senior administrative officers to whom groups of States are assigned. They visit the States and discuss the working of the plans with officials and Ministers, explaining to them the Commission's points of view and resolving difficulties.

(ii) Conferences of States' Ministers and meetings of Advisory Committees to Union Ministries: The members of the Commission attend conferences of States' Ministers (Education, Health, Co-operation, Agriculture, etc.) convened by the Union Ministries concerned. They also attend the annual conference of Development Commissioners at which the working of the community development movement is discussed. The members of the Commission also attend the meetings of the Advisory Committees attached to Union Ministries.

(iii) Consultative Committee of Parliament: Parliament constitutes a Consultative Committee consisting of about 80 members to be in touch with the Commission at all stages commencing from the stage of formulation of the plan. The Planning Commission meets the Consultative Committee frequently. Arrangements for consultation with parliamentary Committees at the stages connected with the formulation of the plan are dealt with later.

(iv) Panels: The Commission has set up panels consisting of the best persons available in different fields both within and outside government, to advise it on general questions of principle and policy. There are now a panel of economists, a panel of scientists, and also separate panels of persons qualified to advise on agriculture, land reforms, education, health and housing. These keep the Commission in touch with the best thinking in the country on the different subjects.

(v) Federation of Industries: All-India boards, etc. The Planning Commission keeps in close touch with the Federation of Indian

Chambers of Commerce and Industry and other representative organizations for industries and commerce. It also meets representatives of all-India boards for discussions—the Khadi and Village Industries Board, Handloom Board, Handicrafts Board, etc.

(vi) Experts from other countries and the World Bank Missions: The Commission also has the advantage of discussions on planning problems with delegations from other countries, the representatives of the United Nations agencies, the United States A.I.D. experts, experts obtained under the Colombo Plan, etc. The opportunities it has of detailed talks with the missions sent by the World Bank to review the progress of India's economic development from time to time are also of great value to the Commission in its work.

(vii) *Universities and other research institutions in India*: The Commission is assisted in its work by research and other work done in research institutes, attached to Universities or working independently, which examine general issues connected with planning and important aspects of India's plans and publish books and papers on them. Eminent economists from other countries are often associated with these institutions in research on problems in which they have special interest.

The Planning Commission prepares the plans for the Union and the States. The plans show the financial resources available and their allocation among the different sectors of the economy both in the Union and the States with details of the projects. The Planning Commission also prepapers plans for important industries in the private sector, co-ordinating them with those for industries in the public sector and those for small scale industries. Plans are prepared for five year periods. The First Plan was for the period April 1, 1951—March 31, 1956, the Second Plan for April 1, 1956—March 31, 1961 and the Third Plan for April 1, 1961 to March 31, 1966. Plans, once published, are revised as conditions change. Every year, annual plans are prepared for the Union and the States after reviewing progress made and taking into account the latest revised financial prospects—internal and external. The annual plans are incorporated in the Union and State budgets and are passed by Parliament and State legislatures. Similarly, the private sector plans are also revised from time to time as conditions change in regard to likely demand and availability of raw materials and of internal finance and foreign exchange. Planning is thus a continuous process. The Commission prepares progress reports and advises Union and State Ministries on the working of plans. It also undertakes evaluation of projects and programmes, and organizes research.

States have their own planning arrangements. In every State, there is a Cabinet Committee which is in close touch with the preparation of the plans and the manner in which they are carried out. This committee is assisted by a committee of officials working under it for co-ordinating plans made by different Ministries and supervising implementation. In many States, there are Advisory Committees of non-officials consisting of members of Legislative Assemblies and others whose advice is likely to be useful. The Planning Commission has made suggestions for strengthening the planning organizations in States, as they should undertake larger responsibilities for the preparation of long-term plans in fields of development in the subjects allocated to them and economic and technical investigations and also watch implementation and publish progress reports. The need for adequate arrangements for planning at district and block levels, including preparation of village plans, has also been stressed.

Mention should be made here of the National Development Council which was established in 1952. This Council consists of the Prime Minister (Chairman), the Chief Ministers of all States and the members of the Planning Commission. The Union Ministers in-charge of subjects that come up for discussion are also invited to attend meetings. The functions of the Council are: (i) to consider the proposals formulated for plans at all important stages and accept them; (ii) to review the working of plans from time to time; (iii) to consider important questions of social and economic policy affecting national development; and (iv) to recommend measures for the achievement of the aims and targets set out in the national plan, including measures to secure the active participation and co-operation of the people, improve the efficiency of the administrative services, ensure the fullest development of the less advanced regions and backward sections of the community and through sacrifices borne equally by all citizens, build up resources for national development. The vital role of this body is obvious. It promotes collective thinking and joint action by the Union and States and emphasizes the national character of the plans. Through its deliberations, uniformity is brought about in social and economic policies where national interests requires this, without in any manner impairing local initiative and responsibility.

The other committees should also be mentioned. The Central Committee for Community Development, which consists of the Prime Minister as chairman and members of the Planning Commission and the Ministers of Agriculture and Community Development as members, meets regularly to review the progress of the community development movement and guide the policies to be followed. The Committee for Land Reforms also consists of the Prime Minister as chairman and members of the Planning Commission and the Minister of Agriculture as members. It advises on proposals for land reforms received from States and reviews the progress made in legislation.

Evolution of a National Plan: *In democracies, plans can be effective only if there is the widest participation by interests concerned at all stages of their* preparation and the largest measure of public support is obtained for their basic aims and the patterns of growth envisaged. This is particularly vital in regard to rural programmes: these can have no chance of success unless "the millions of farmers in the country accept their objectives, share in their making, regard them as their own and are prepared to make the sacrifices necessary for implementing them." Considerable thought is devoted to these aspects and methods and procedures are revised from time to time in the light of experience. It might be useful to explain briefly the main steps taken with these ends in view.

The first stage is the formulation of the broad strategy and the basic objectives, including the aggregate and inter-sectoral financial allocations and the targets in terms of employment opportunities provided and increase in per capita national income. For working these out, the Commission holds frequent discussions with Central and State Ministries, the Reserve Bank of India, the panel of economists and other advisory bodies already referred to, including the Consultative Committees of Parliament. Questions connected with resources for the plan—from current revenues, public loans, small savings, etc.—and the limits of deficit financing are examined with the Finance Ministries of the Union and States and the Reserve Bank of India. Proposals on all these issues are placed before the Union Cabinet and discussed at several meetings. They are also considered by the National Development Council. The decisions reached form the basis for preparing the plans.

While these discussions are in progress, as the second stage in the preparation of plans, working groups are set up for different sectors of the economy—agriculture, education, health, industry, railways, etc. These consist of representatives of Ministries including technical officers and of the Planning Commission. In State subjects, working groups are set up in each State to work in close touch with the concerned Central group. These working groups indicate targets of production which can be achieved, with the technical and other resources available, irrespective of financial limitations—with specific projects, costs, etc. In the chapter on community development, it is explained how schemes for rural development and welfare are built up from the village upwards, for being incorporated in the State working groups' proposals. The programmes for industries in the public sector are initiated by the respective wings under the Ministries concerned. Those for the private sector are prepared by organized bodies representing individual industries. The Planning Commission considers these proposals, in consultation with the development councils for the industries for which these exist—these councils consist of representatives of the employees, labour and consumers and are set up under the Industries (Development Regulation)

Act, 1951—and with organized bodies of industries for which there are no such councils. Plans for industries in the public and private sectors are carefully co-ordinated. Plans for small scale and cottage industries are framed by State Governments and the autonomous bodies already referred to and are discussed with them before they are finalized. For example, an informal all-party Parliamentary Committee was set up in December, 1958, to consider issues relating to the Third Five-Year Plan and advise on them. It comprised leaders of political parties in Parliament, the Union Ministers of Home, Finance, Planning and Community Development, and the Deputy Chairman of the Planning Commission. Papers relating to the Plan were placed before the Committee from time to time and its views formed part of the material considered for the draft outline.

At the third stage, the financial and physical targets are brought together and a plan is prepared embodying priorities. For this, there are frequent discussions with the Ministries and with the Federation of Industries and other representative organizations. The plan, as settled, is placed before the Cabinet and the National Development Council, in the form of a 'Draft Outline'. When approved, the draft is published for public criticism. It is also placed before committees—five in number—of Members of Parliament of all parties, appointed by Parliament to consider it:

Committee 'A'—Policy, resources and allocations.

Committee 'B'—Industry, power and transport.

Committee 'C'—Agriculture and rural economy.

Committee 'D'—Social services.

Committee 'E'—Technical manpower and scientific research.

The observations made by the members are explained carefully.

At the fourth stage, detailed plans prepared by the Union Ministries and States are discussed. These plans show the expenditure on schemes and projects to be carried over from the previous plan and new ones. The financial resources to be provided by the States themselves and the quantum of Central assistance are also discussed. These discussions last several months. Efforts are made to ensure that the allocations to individual States are equitable and that special attention is given to backward regions and classes. The draft outline, revised in the light of these discussions and such further material as might be available, is again placed before the National Development Council for approval.

At the fifth stage, the preparation of the detailed report is taken in hand. Every chapter is sent in draft to the Ministries and edited. When completed, the report is placed before the Cabinet and the National Development Council. Finally, the report is placed before Parliament and resolutions are moved in both Houses by the Prime Minister. Discussions in both the Houses last for several days and many members take part

in them. Similarly, the plans for the States are discussed in local legislatures. The plans become effective after they are approved of in Parliament and the State legislatures.

Discussions take place in Parliament and State Assemblies at practically all the sessions on subjects connected with the plans—progress in implementation; working of important projects included in plans—irrigation, power, industrial and transport undertakings, price levels, etc. During the budget sessions in Parliament and State Assemblies, the working of the plan in the Union and the States is systematically reviewed as the annual plans form part of the budgets in the Union and the States. The reports of the Estimates Committees and Public Accounts Committees of the Parliament and State legislatures devote much attention to the working of the plans in individual sectors of the economy and these are discussed at considerable length. In these and other ways, interest in the plans is always maintained at a high level. The Planning Commission publishes periodical progress reports on the working of the plan. It published six such reports for the First Plan and five for the Second including a special appraisal report in May, 1958. These reports are invariably discussed in Parliament and in State legislatures.

Planning in India thus represents a great co-operative effort. Many agencies participate in the formulation of a plan at all stages. When the broad social aims and strategies of the plan and the allocations of financial resources among the sectors of the economy have been approved by the Cabinet and the National Development Council, detailed projects and programmes are prepared by technical and other officers of the Union Ministries and State Governments who are entrusted with the duty of implementing them. Similarly, the plans in the private sector are worked out with the co-operation of organized representatives of industries. Targets are fixed for industries as a whole. The distribution of the targets among the units is made on definite criteria and the units are free to carry out their expansion programmes in accordance with the laws and regulations applicable to all industries. In the distribution of resources available among detailed heads, projects and programmes, Union Ministries and State Governments naturally have much discretion; the Planning Commission co-ordinates their decisions in order to ensure that the Central and State programmes fit into one another. A national plan accepted by Parliament thus emerges with defined social and economic objectives and provides for a rate of growth which is thought necessary in the national interests. In the implementation of the plan, the Union and State Governments function in the respective spheres assigned to them in the Constitution.

Priorities and Patterns of Development: When the First Five-Year Plan was published, a long-term objective was placed before the nation. This was slightly revised in 1956 and accepted by Parliament. The objective is

the doubling by 1975-76 of the per capita national income as it stood in 1956 (approximately Rs. 280 in 1956 to about Rs. 550 before 1976 at 1952-53 prices). After the Census of 1961, forecasts of population growth showed net annual increases larger than in the estimates of 1956, as the result of an appreciable reduction in death rates.

	Population in (millions)			
	1961	1966	1971	1976
1956 estimates	408	434	465	500
1961 estimates	438	492	555	626

It has been decided that the nation should make the increased efforts needed to achieve the per capita rate of growth envisaged in 1956. This means a cumulative annual increase of 6 per cent in the years 1961 to 1976. The difficulties involved are understood; but there is absence of a sense of urgency in the nation—a conviction that, in modern conditions, even this rate of growth may not provide the minimum social and economic base required for the efficient working of democratic institutions.

In India's plans, the sectors of the economy are grouped under the following heads:

(i) Agriculture and community development (including minor irrigation).
(ii) Irrigation projects—multi-purpose, major and medium.
(iii) Power—hydro-electric and thermal.
(iv) Industries and minerals—heavy and producer goods industries, large-scale organized consumer goods industries, small-scale industries, and cottage industries.
(v) Transport and communications—railways, ports, roads, etc.
(vi) Social services—education, health, relief and rehabilitation, etc.

It might be useful to describe the patterns of growth evolved in the ten years covered by the First and Second Plans.

The basic aim of all planning is the improvement of the quality of life of men and women. In the plans, therefore, high priority is assigned to education—expansion of facilities at all levels to the maximum limit possible. Special importance was attached to the completion in the Third and Fourth Plans of the programme for free and compulsory education for boys and girls of the age group 6-14. Similarly, health plans—like those for eradication of malaria, provision of wholesome drinking water supplies, etc.—have high priority. From the outset, the Government of India accepted the need for family planning. In all the plans, there are financial allocations for assisting voluntary workers to carry on propa-

ganda and for government and other clinics to offer facilities to those who seek them.

High priority is assigned to increased agricultural production by scientific utilization of land and water resources and the spread of the community development movement. It is recognized that 'an agricultural revolution—marked rise in productivity per worker in agriculture—is a pre-condition of the industrial revolution.' Before planning commenced, multi-purpose projects and large and medium irrigation projects had been started in several States. These were included in the plan. Later, more such projects were added. Provision is also made for research in agriculture in the widest sense, animal husbandry and allied fields, and for teaching institutions. The community development movement, which provides a centrally-aided extension service for establishing contact with all families in the countryside, was steadily expanded to cover the entire country by 1963. In these sectors, the aim is to see that finance is made available for all useful schemes that can be carried out and to enlist for them the widest possible measure of public participation.

Power production is also given priority. At the end of the Second Plan, the total power generated was divided almost equally between hydro-electric and thermal power. The Third Plan target was 12.7 million kw. against 5.7 million kw. in 1960-61 and 3.4 in 1955-56.

Coming to industries and minerals, the Second Five-Year Plan sought to initiate the process of decisive transformation which Rostow calls the "take off", "when the economy, and the society of which it is a part, transform themselves in such ways that economic growth subsequently is more or less automatic". The industrial policy resolution of 1956 defined the roles of the public and private sector in industries. The resolution is worked in a flexible manner. The aim is that both sectors should work together, developing to the maximum extent possible. The First Five-Year Plan had included projects for additional production of iron and steel in the public and private sectors and for a plant for heavy electrical equipment, These were not started in the First Plan period and were carried over to the Second Plan. After a survey conducted in 1954, a target of six million tons of ingot (4½ millions of finished steel) was fixed for the Second Plan with coal, managanese and other targets to match. Among non-ferrous metals the production of aluminium for which raw materials are available had an important place. There were also allocations for a heavy machine building industry—a plant for heavy electrical machinery and plants for other machinery for which demand existed in the country. Provision was also made for heavy chemical and drug projects, after a survey of internal needs. India is advantageously placed for the production of iron, as it has high grade iron-ore, coking coal and other raw materials available in close proximity in certain regions, and manufacturing costs can be lower than in many other countries.

In the course of the Second Five-Year Plan, explorations showed the existence of peotroleum reserves. The establishment of refineries and exploration in further areas were, therefore, accorded high priority. At the same time, the organized consumer goods industries had to be expanded to meet growing demands. These are almost entirely in the private sector. Investments in such industries increased steadily from plan to plan (Rs. 325 crores in First Plan, Rs. 850 crores in the Second and Rs. 1,056 crores in the Third). For planning and setting up heavy industries and those requiring modern technology, agreements for collaboration with foreign interests have been concluded; these provide foreign credit for purchase of equipment and machinery and expert technical assistance and training facilities for local staffs in India as well as outside. To give examples, the three steel plants in the public sector have such agreements with the U.S.S.R., West Germany and Britain; the heavy machine building project at Ranchi with the U.S.S.R., and the heavy electrical plant at Bhopal with British interests. There is foreign collaboration in oil exploration and for setting up of oil refineries. Technical collaboration agreements with foreign interests are encouraged for private sector projects as well.

From the point of view of employment, much importance is attached to small-scale and cottage industries. Special organizations have been evolved for assisting the growth of small-scale industries. (i) There are service institutes and extension centres in all States with technical personnel advising on projects, giving training, etc. (ii) Industrial estates have been set up in which developed sites or buildings are made available with power and other facilities. (iii) The National Small Industries Corporation supplies machinery on hire-purchase. (iv) The State Bank of India has a special scheme for giving credit to small industries. Autonomous Boards have been set up—the Khadi and Village Industries Commission; the All-India Handicrafts Board and the Handloom Board —which are doing good work in their respective spheres. The Handloom Board, for example, has brought about half the looms in the country into co-operatives (10,414 co-operatives with 1.3 million looms employing 1.6 million persons).

This industrial pattern was continued in the preparation of the Third and Fourth Plans with larger targets for iron and steel, petroleum exploration and refining, and heavy machinery manufacture including electrical, to meet the growing needs of the country as ascertained by surveys. Obviously, the definite programmes to be undertaken from time to time will have to be formulated on the basis of the foreign aid and technical co-operation available. Preliminary arrangements including training programmes have, however, to be organized with this broad objective in view. The provision under railways and ports is related to the volume of traffic to be handled and is increased steadily from year to year.

III. The Five-Year Plans

The First Plan: The First Five-Year Plan had the following aims in view:

(i) to restore the economy which had run down as a result of the war; to resist the inflationary pressures that were prevalent; to build up the transport system; and to ease the food and raw materials position;

(ii) to formulate and execute programmes of development which would be substantial in themselves while laying the foundation for larger efforts in the coming years;

(iii) to initiate measures of social justice on a wide scale, thus taking the first steps in the direction of the pattern of society placed before the nation by the Constitution in the Directive Principles;

(iv) to build up administrative and other organizations which would be equal to the large programmes of reconstruction to which the nation is committed.

As there were inflationary pressures in the economy, the Planning Commission proceeded with caution in determining the size of the Plan. In the draft outline, the expenditure in the public sector was fixed at Rs. 1,793 crores which included deficit financing of the order of Rs. 290 crores. In the course of the Plan, the size was increased from time to time as inflation was being checked. Ultimately, the allocations under the heads in the public sector were as follows:

	(Rs. crores)
Agriculture and community development	372
Irrigation and flood control	395
Power	266
Industry and minerals	179
Transport and communications	556
Social services: education, health, housing and rehabilitation and miscellaneous	588
Total	2,356

Over and above this, were the credits—short, medium and long-term—to agriculture given through the Reserve Bank of India, which were Rs. 60 crores in June, 1956. These were outside the Plan. Investments in organized industries in the private sector amounted to nearly Rs. 325 crores.

The table below shows the way in which the Plan in the public sector was expected to be financed and the way in which it was actually financed:

	(Rs. crores)	
	Expected in the Plan	Actuals
Total expenditure in the public sector under the First Five-Year Plan	2,186	2,022
Resources under various heads	1,286	1,287
A. Budgetary Resources	769	699
Receipts from current revenues	599	584
Receipts from railways..	170	115
B. Other sources	517	588
Loans from the public	115	204
Small savings and unfunded debt	270	304
Other debt heads	132	80
Gap in resources	900	735
External assistance	300	203
Deficit financing	600	532

As a result of the First Five-Year Plan, there was an increase of 18 per cent in the national income or on the average of 3 per cent every year and direct employment was provided for 4.5 million persons. It is estimated that, in this period, population increased at the rate of 1.5 per cent a year.

The Second Plan : The size of the Second Plan was a subject to which much thought was given by the Planning Commission. It was first proposed that the public sector outlay might be of the order of Rs. 4,300 crores. It was soon found, however, that as the needs to be met were large and the technical and administrative organizations at the disposal of the Central and State Governments were capable of executing programmes of larger magnitude, the aggregate size could be increased to Rs. 4,800 crores. The increase was due largely to the requirements of the development of heavy industries, including iron and steel production, additional coal production and the improvement of the railway system. The net investment on the Second Plan was of the order of Rs. 6,100 crores—Rs. 3,800 crores in the public sector and Rs. 2,300 crores in the private sector. The 'current' expenditure amounted to another Rs. 1,000 crores. The aims of the Second Plan were formulated as follows:

(i) an increase of 5 per cent every year in the national income;
(ii) provision of employment to about 10 million persons;
(iii) rapid industrialization with particular emphasis on the production of iron and steel and development of basic and heavy industries and on their co-ordination with a planned expansion of large-scale consumer goods and cottage and small-scale industries;
(iv) reduction of inequalities in income and wealth and more even distribution of economic power, thus helping in the creation of a socialist pattern of society.

It was expected that an industrial plan of the nature envisaged would cause strains and stresses in the economy, especially on the side of foreign exchange. Actually the situation in the initial years was less favourable than anticipated owing to the set back in agricultural production caused by adverse seasonal conditions in the rice-growing eastern regions, a rise in prices in countries in which orders were placed for machinery, and the short-term effects of the Suez crisis.

It soon became clear that the financial resources required for completing the Plan would be significantly higher than the total of Rs. 4,800 crores envisaged initially. In May, 1958, therefore, the Planning Commission made a reappraisal of the Plan taking into account the progress made until then and the likely trends and requirements for the remaining years of the Plan. This survey also included a review of the foreign exchange resources already committed and likely to be available. The conclusion was reached that the expenditure in the public sector should be fixed at Rs. 4,500 crores. The private sector remained unaffected. Actually, the expenditure in the public sector came to Rs. 4,600 crores divided as follows:

	(Rs. crores)
Agriculture and community development	530
Irrigation and flood control	420
Power	445
Industry and minerals	900
Village and small industries	175
Transport and communications	1,300
Social services: education, health, housing and rehabilitation and miscellaneous	830
	4,600

To this should be added credits—short, medium and long-term—given to agriculture through the Reserve Bank of India, which were Rs. 132 crores in June, 1959, as against Rs. 60 crores in June, 1956.

The total investment in the private sector was as follows:

	(Rs. crores)
Agriculture and community development	675
Power	40
Organized industry and minerals	725
Village and small industries	225
Transport and communications	135
Social services and miscellaneous	1,000
Inventories	500
Total ..	3,300

The estimate of financial resources against the outlay of Rs. 4,800 crores and the actuals (Rs. 4,600 crores) was as follows:

	(Rs. crores)	
	As expected in the Plan	According to actuals
Balance from current revenues excluding additional taxation	350	—50
Contribution of Railways	150	150
Loans from the public (net)	700	780
Small savings (net)	500	400
Provident funds (net) Steel equalization fund: balance of miscellaneous capital receipts over non-plan disbursements	250	230
Additional taxation (There was a gap of Rs. 400 crores left to be covered by additional internal effort) ..	450	1,052
Budgetary receipts corresponding to external assistance	800	1,090*
Deficit financing	1,200	948
	4,800	4,600

*Includes investment of P.L. 480 funds in special securities.

There is no doubt that in the ten years covered by the First and Second Five-Year Plans the economy gained considerably in strength. The industrial base was broadened and a large and growing class of skilled technicians and industrial managers came into existence. On the other hand, there were also some disquieting features. There was an upward trend in prices during the Second Plan period, though part of the rise was a corrective to an earlier decline. The index of wholesale prices (1952-53=100) rose from 98.1 in 1956 to 127.5 in 1961; food articles from 91.8 in 1956 to 117.6 in 1961 (cereals and pulses, however, were 100 and 93 in 1961); and industrial raw materials from 109.4 in 1956 to 159.1 in 1961. Also agricultural production lagged behind owing partly to administrative and technical short-comings, especially cotton (5.4 million bales as against 6.5), jute (4 million bales as against 5.5) and oilseeds (6.5 million tons as against 7.6). Further, exports were more or less stagnant; the annual average in the period of the Second Plan being Rs. 614 crores as against an annual average of Rs. 609 crores in the First Plan.

The deficit in the balance of payments over the First Plan period was Rs. 318 crores. This was financed by external assistance of Rs. 196 crores and the running down of foreign exchange reserves by Rs. 122 crores. For the Second Plan period, the balance of payments deficit was about Rs. 2,100 crores. This was met by external assistance, including P.L. 480, of Rs. 1,410 crores, using the foreign exchange reserves for Rs. 600 crores and drawings from the I.M.F., the net amount being Rs. 55 crores. The total foreign assistance authorized during the Second Plan period came to Rs. 2,450 crores, including P.L. 480 to the extent of Rs. 545 crores.

The national income and per capita income in the years covered by the Second Plan is shown below:

Year Financial	National income at 1948-49 prices (Rs. 100 crores)	Per capita income in Rs. (1948-49 prices) based on 1941, 1951 and 1961 census figures
1950-51	88.5	247.5
1955-56	104.8	267.8
1956-57	110.0	275.6
1957-58	108.9	267.4
1959-60	118.6	279.2
1960-61	127.3	293.2

The rise in national income in real terms during the Second Plan period was 21.5 per cent as against 18.4 per cent in the First Plan period. The Planning Commission calculated that in the course of the Second Plan, employment opportunites created amounted to about 8 millions of which 6.5 millions were outside agriculture. The baoklog of employment at the end of the Second Plan was estimated at 9 millions. The details of these "admittedly rough" estimates can be seen in chapter X of the Third Plan report. The report adds that "in addition, under-employment in the sense of those who have some work but are willing to take up additional work cannot be precisely estimated, but is believed to be of the order of 15-18 millions."

The Third Plan: The Third Five-Year Plan represented a crucial stage in the fulfilment of India's social and economic objectives. Taking into account the experience of the first two plans, the Third Plan was formulated with the following aims:

(i) to secure a rise in national income of 5 to 6 per cent per annum, the pattern of investment being designed so as to sustain that rate of growth during subsequent plan periods;

(ii) to achieve self-sufficiency in foodgrains and increased agricultural production to meet the needs of the growing population and also the requirements of industry and of exports;

(iii) to expand basic industries like steel, fuel and power, and chemical industries and also establish machine building capacity, so that the requirements of further industrialization could be met within a period of 10 years or thereabouts largely from the country's own resources;

(iv) to utilize to the fullest possible extent the manpower resources of the country and ensure a substantial expansion in employment opportunities; and

(v) to establish progressively greater equality of opportunity and to bring about reduction in disparities in income and wealth and a more even distribution of economic power.

As already stated, revised forecasts of population on the basis of preliminary census figures showed figures of 438 millions in 1961 and 492 in 1966. The doubling of the per capita income before 1975-76 which is the objective of India's plans has, therefore, to be achieved under less favourable conditions.

The National Development Council fixed the aggregate financial outlay for the Third Plan at Rs. 7,500 crores for the public sector and Rs. 4,100 crores for the private sector distributed as follows:

	Public Sector			Private Sector investment	Total investment
	Plan outlay	Current outlay	Investment		
Agriculture, minor irrigation and community development	1,068	408	660	800	1,460
Major and medium irrigation	650	—	650	—	650
Power	1,012	—	1,012	50	1,062
Village and small industries	264	114	150	275	425
Industry and minerals ..	1,520	—	1,520	1,050	2,570
Transport and communications	1,486	—	1,486	250	1,736
Social services and miscellaneous	1,300	678	622	1,075	1,697
Inventories	200	—	200	600	800
Total ..	7,500	1,200	6,300	4,100	10,400

To this should be added credits—short, medium and long-term—given to agriculture through the Reserve Bank of India. It was estimated that these would rise to about Rs. 390 crores by the end of the Third Plan. The level of investment, public and private, was expected to rise from about Rs. 1,600 crores in 1960-61 to Rs. 2,600 crores in 1965-66. In the public sector alone, the corresponding investment figures were Rs. 800 crores and Rs. 1,700 crores respectively.

The tentative estimate of financial resources against the estimates outlay of Rs. 7,500 crores in the public sector was as follows:

Item		Rs. crores
Balance from current revenue (excluding additional taxation)		550
Contributions of Railways		100
Surpluses of other public enterprises		450
Loans from the public (net)		800
Small savings (net)		600
Provident funds (net)		265
Steel equalization fund (net)		105
Balance of miscellaneous capital, receipts over non-plan disbursements		170
Total of above items	3,040	
Additional taxation including measures to increase the surpluses of public enterprises		1,710
Budgetary receipts corresponding to external assistance ..		2,200
Deficit financing		550
Total ..		7,500

The levels of investment in the private sector were later slightly revised as follows:

Group	Rs. crores
Agriculture including irrigation	850
Power	50
Transport	250
Village and small industries	325
Large and medium industries and minerals	1,100
Housing and other construction	1,125
Inventories	600
Total ..	4,300

The pattern of development in the Third Plan followed the pattern of the Second Plan with higher rates of investment and larger targets.

The cost of the programmes included in the public sector was estimated at Rs. 8,300 crores, as against the total outlay of Rs. 7,500. The greater part of the gap related to Central Government's schemes. Their total cost was Rs. 4,076 crores, the actual financial provision being Rs. 3,600 crores. In addition, supplementary items were mentioned in the Plan, notably programmes for creating additional employment opportunities, for which no financial provision was made.

The foreign aid needed for the Third Plan was estimated at Rs. 2,600 crores, exclusive of P.L. 480 imports. (Under P.L. 480 agreements entered into with the U.S.A. foodgrains valued at about Rs. 600 crores were to be imported during the plan period). This estimate was made on the basis that annual exports during the years covered by the Plan would amount, on an average, to Rs. 740 crores, i.e., aggregate exports of Rs. 3,700 crores for the five years of the plan. The need for concerted efforts for expanding was emphasized in the Third Five-Year Plan report, which also made specific proposals for the purpose, based on special studies undertaken in consultation with the Ministries and representatives of organized industries.

It was estimated that the plan programmes will provide employment opportunities for about 14 million persons during the Third Plan; the addition to the labour force could have been of the order of 17 millions—about a third of the increase being in urban areas. In the result, therefore, leaving aside the earlier backlog of unemployment, additional employment opportunities were required for 3 million persons. For this purpose, a special rural works programme for giving employment to 2.5 million persons, on an average of 100 days in the year, was prepared and financial allocations made for carrying it out. It was also expected that the impetus given to small-scale, cottage and other industries by

extending electricity to small towns would add to the employment potential of the plan.

It was expected that over the Third Plan period, the national income would increase by about 30 per cent. But because of two wars on India's borders in 1962 and 1965 and failure of monsoons, the Third Plan ended with the actual achievement being only half this target i.e. 15.5 per cent. The increase in population reduced the rate of increase in per capita income (in real terms) to 2.8 per cent for the entire plan period.

The difficulties encountered in the implementation of the Third Plan and the inadequate rate of growth in the economy, delayed the start of the Fourth Plan for three years until March, 1969. The interval was covered by three annual plans in which the level of investment was stabilized at the level of the last year of the Third Plan, to continue or complete the work on projects under construction and to consolidate the economy before expanding investment further. This limited objective of economic policy during the three year period was largely achieved by 1969. The recovery in agricultural production in 1967-68, marking the beginning of the "green revolution", and gradual revival of industry after a period of recession imparted considerable strength to the Indian economy and helped to achieve a fair degree of stability in the price level. which encouraged increased efforts to mobilize additional resources and step up outlays under the Fourth Plan.

IV. Other Functions of the Commission

Institutional Changes: Social Change. Reference has been made to institutional and other changes necessary for promoting large scale social and economic growth. It might be useful to mention the main changes briefly; these are dealt with in greater detail elsewhere.

The changes in the rural sector brought about by the land reforms laws and the panchayat and co-operative organizations are described in the chapters relating to these subjects. A new pattern of rural society is being evolved, with changes in attitudes and outlooks.

There have been reforms in the field of banking and life insurance to make them efficient instruments for planning. The Reserve Bank of India has been nationalized. Similarly, "The Imperial Bank of India" and its subsidiaries have been nationalized and reconstituted as "The State Bank of India" with units in States. With the nationalization of 14 major banks in July, 1969, nearly 83 per cent of the Indian banking has come under the public sector. Also, life insurance has been made a State monopoly under the Life Insurance Corporation of India. These new institutions have broad social objectives. The Reserve Bank of India, among other programmes, is supporting rural credit on an impressive

scale. The State Bank of India has a large programme for opening branches in order to spread the banking habit. During the five years 1955-60, it opened 400 new branches. It has also initiated schemes for financing small-scale industries. Similarly, the Life Insurance Corporation is spreading the habit of insurance in new areas and its investment policy is guided by the priorities in the plans.

To ensure that the private sector industries subserve the wider social purposes envisaged in the Constitution, the Industries (Regulation and Control) Act of 1951 was passed. Under it, development councils were set up to promote efficient working. There is provision in this law for management being taken over on specified grounds. A system of licensing of industries has been introduced to direct investment in accordance with plans. Mention should be made of the measures taken for improving conditions of labour; labour laws have been enacted including one for fixing minimum wages in agriculture; the setting up of bipartite machinery for adjusting differences; and laws providing for provident funds and retrenchemet benefits. Lastly, there are special programmes included in all the plans for the welfare of backward classes and tribal areas and for colonization of agricultural labour. The social and economic changes initiated in these ways are gaining in momentum.

Administration: Research and Evaluation. From 1951 onwards, special studies have been made of questions relating to administration at all levels and the necessary reforms introduced Mention may be made of the special reports submitted by A. D. Gorwala (1951), Paul Appleby (1953 and 1956), and V. T. Krishnamachari (August, 1962). The steps taken for improvement may be grouped under the following heads: (i) the expansion of the cadres of administrative and technical services and changes in training schemes and institution of refresher courses in India and abroad in order to meet the requirements of the plans; (ii) continuous 'audit' of efficiency through Organization and Methods divisions, vigilance units, etc; (iii) creation of new services required for planning and for industrial and other projects in the public sector like the Economic (Advisory) Service, the Statistical Service, the Industrial Management Service, etc; (iv) creation of new All-India Services in important fields of activity—Engineering, Forest, Medicine and Public Health—which, under the Constitution are State subjects. The district administration, which holds a key position, has been changed radically under the community development programme. Much thought is also devoted to such subjects as co-ordination of inter connected activities in the Ministries, relations between Cabinets and Civil Services, etc.

Research is entrusted to the Research Programmes Committee which was set up in 1953. It has 30 to 35 expert members drawn from the

fields of economics, sociology, political science and public administration. The committee meets twice a year. It has a Standing Committee and Regional Committees which meet off and on. The functions of the committee are to select subjects for research, invite schemes from universities and research institutes and scrutinize and approve them. The committee also guides research on the technical side—suggests standard concepts and definitions, illustrative schedules, etc. Upto the end of 1961, about 90 studies had been sanctioned on such subjects as social and economic effects of land reforms legislation in different regions; economics of farm management; social and economic problems of rapid urbanization; direct and indirect benefits of irrigation; resources for development—rural incomes and savings, mobilization of small savings, etc. Many of these studies have been completed and the reports published.

Two bodies have been set up for evaluation. The first is the Programme Evaluation Organization. This was set up in 1952 as part of the community development movement for making objective assessments of its impact on the economic and social life in rural areas. It has an economist at its head, with an advisory body of economists and sociologists. Though it is attached to the Planning Commission, the organization is autonomous. It is entitled to form and publish its own conclusion on the basis of studies conducted on the spot through its regional staff. The studies cover a wide range of subjects—the impact of specific programmes on rural life; acceptance of improved agricultural practices by farmers; progress of cottage industries; organizational aspects, etc. There are also studies of the working of panchayats and co-operatives at all levels. In all these studies, attempts are made to assess the extent to which the movement is achieving its main objectives—the development of self-reliance and community feeling among the people; their active participation in common programmes; and the measure in which its benefits reach the weaker sections of the community. The reports of the organization are considered at the annual conferences of Development Commissioners. The reports arouse wide interest and are discussed in Parliament and legislative assemblies and in the press.

The second is the Committee on Plan Projects which was set up in 1956. This committee consists of the Union Minister of Home Affairs as chairman and the Union Minister of Finance and Planning and the deputy chairman of the Planning Commission as members. When particular projects are taken up for investigation, the Union Minister concerned and two Chief Ministers of States are co-opted. The committee organizes investigations, including inspection of important projects or classes of projects through specially selected teams of experts recruited in the country and from outside, with the object of suggesting ways of securing maximum efficiency and economy in planning and execu-

tion. The teams make recommendations which are of general applicability. Investigations on these lines have been made in regard to: (i) buildings—multi storeyed office buildings, factory and residential buildings and for technical institutions and colleges; (ii) urban water supply schemes, etc; (iii) major irrigation projects; (iv) minor irrigation projects; (v) road transport schemes in States; (vi) groups of industrial undertakings in the public sector, etc. Other investigations are in progress. In all cases, reports of teams are considered by the Committee and steps are taken through the Union and State Ministries concerned to give effect to the recommendations.

V. Appraisal and Prospects

The period of the Third Five-Year Plan has been a period of slow economic growth. The annual rate of increase in national income was only 3 per cent against the 5 per cent increase envisaged. This shortfall is due to a setback in agricultural production owing to bad seasons and to a slowing down in the rate of growth in important industries. Then, there was also the serious threat to national security and the continuing emergency the nation has to face. All development is inextricably linked up with national security, as the organization of defence in modern times needs a broad based agricultural and industrial foundation. The National Development Council which met in November, 1962, viewed the plan from this angle and readapted it so as to meet the urgent requirements. The 'annexure' shows the progress made in important sectors of the economy during the three plan periods. The conclusion that emerges is that a great national effort should be made to obtain, through highly increased administrative and technical efficiency, the best returns possible from investments that have been already made and that will be made from time to time on irrigation, power, industrial projects in the public and private sectors, transport systems, etc. The aim should be to secure the largest production possible as well as raise the maximum resources for investment in future development programmes. This means hard and sustained internal efforts in coming years. Much will also depend on the availability of foreign aid in suitable forms and the building up of export markets to the level of the targets envisaged in the plan. The realization of the objective of doubling by 1975-76 the per capita national income as it stood in 1955-56 has now become much more important than ever before. This means an annual cumulative rate of growth of a minimum of 7 per cent in the coming years. The nation has to meet this challenge unitedly and in a spirit of determination.

ANNEXURE *

Achievements under the Plans

Item	Unit	1950-51 Actuals	First Plan 1951-56 Actuals	Second Plan 1956-61 Actuals	Third Plan 1961-66 Actuals	Fourth Plan Targets 1973-74
I Education						
(i) General education						
Students in schools	Million numbers	23.50	31.50	43.54	67.52	99.03
Primary stage (6-11 years)	Million numbers	19.15	25.17	34.99	50.47	68.58
Middle stage (11-14 years)	Million numbers	3.12	4.29	6.70	10.53	18.10
Higher secondary stage (14-17 years)	Million numbers	1.22	1.88	3.03	5.28	9.69
University stage (17-23 years)	Thousand numbers	360	634	740	1,240	2,660
(ii) Technical education						
Engineering & Technology						
Degree (annual intake)	Numbers	4,120	5,890	13,692	23,315	25,000
Diploma (annual intake)	Numbers	5,900	10,400	23,736	43,984	48,600
Agriculture & Animal Husbandry						
Degree (annual intake)	Numbers	1,497	3,260	6,935	11,648	N.A.
Medical college (annual intake)	Numbers	2,500	3,500	7,008	11,079	13,000
II Health						
Hospital and dispensaries	Thousand numbers	8.60	10.00	12.60	14.60	N.A.
Hospital beds	Thousand numbers	113.00	125.00	185.60	240.10	281.60
Primary health units	Numbers	—	725	2,800	4,631	5,427
Family planning centres (Rural & Urban)	Numbers	—	147	1,649	5,057	7,081

*This annexure was added in 1971.

P.T.O.

Item	Unit	1950-51 Actuals	First Plan 1951-56 Actuals	Second Plan 1956-61 Actuals	Third Plan 1961-66 Actuals	Fourth Plan Targets 1973-74
III Agriculture and Community Development						
(i) Agricultural production:						
Foodgrains	Million tons	52.20	65.80	79.30	72.00	129.00
Cotton	Million bales	2.90	4.00	5.10	6.30	8.00
Oil Seeds	Million tons	5.10	5.60	7.10	7.50	10.50
Jute	Million bales	3.30	4.20	4.00	6.20	7.40
Tea	Million kgs.	277	308	322	376	475
(ii) Agricultural services:						
Area irrigated (net total)	Million acres	51.50	56.20	24*	26.4*	42.6* (Gross)
Land reclamation (additional area)	Million acres	—	2.70	1.20		1.0*
Soil conservation (additional and benefited area)	Million acres	—	0.70	2 00		5.6*
(iii) Community development						
Blocks	Numbers	—	1,064	3,137	5,260	N.A.
Villages covered	Thousands	—	150	366	567	
Population served	Million numbers	—	78	247	405	
IV Power						
Installed capacity	Million kws.	2.3	3.4	5.7	10.2	14.3
Generated	Million kwh.	6.575	10,777	20,123	36,825	51,700
Towns and villages electrified	Thousand numbers	3.7	7.4	24	43	N.A.

Million hectares

P.T.O.

Item	Unit	1950-51 Actuals	First Plan 1951-56 Actuals	Second Plan 1956-61 Actuals	Third Plan 1961-66 Actuals	Fourth Plan Targets 1973-74
V Industries and Minerals						
(i) Metallurgical industries						
Iron & Steel						
Steel ingots	Million tons	1.4	1.7	3.4	6.5	10.8
Finished steel	Million tons	0.98	1.3	2.4	4.5	8.1
Aluminium	Thousand tons	3.7	7.3	18.5	62.1	220
(ii) Mechanical Engineering industries						
Heavy machinery building (steel & chemical machinery)	Thousand tons	—	—	—	11.0	95
Coal mining machinery	Thousand tons	—	—	—	5.1	20.0
Structural fabrication (including heavy structural shop)	Thousand tons	—	90	150		
Railways						
Locomotives: Steam	Numbers	7	179	272	205	562 (Steam, Diesel, Electric)
Diesel	Numbers	—	—	—	30	
Electric	Numbers	—	—	—	32	
Automobile and ancillary industries						
Passenger cars, Commercial vehicles, Jeeps and station wagons	Thousand numbers	16.5	23.3	*225 5.5	333*	N.A.

P.T.O.

Item	Unit	1950-51 Actuals	First Plan 1951-56 Actuals	Second Plan 1956-61 Actuals	Third Plan 1961-66 Actuals	Fourth Plan Targets 1973-74
Shipbuilding (expansion of Hindustan Shipyard, dry dock and second shipyard	Thousand GRT	—	50 (5 years)	20	38	N.A.
Heavy electrical equipment in the public sector	Million kw.	—	—	—	Neg.	4.25
(iii) Chemical and allied industries						
Fertilizers						
Nitrogenous (in terms of nitrogen)	Thousand tons	9	79	101**	232**	2,500**
Phosphatic (in terms of P_2O_5)	Thousand tons	9	12	53**	123**	900*
Dyestuffs & organic intermediates						
Dyestuffs	Thousand tons	—	4.0	5.0	7.2	14.0
Intermediates	Tons	—	—	—		
Paper and paper board	Thousand tons	114	187	350	558	850
Newsprint	Thousand tons	—	4.2	25	31	165
Cement	Million tons	2.7	4.6	8.0	11	18
Petroleum products	Million tons	—	3.6	5.8	9.4	26.0
Lubricating Oils	Hundred tons	—	—	—	100	

* Rebate to buses and trucks only

** Metric tons.

P.T.O.

Item	Unit	1950-51 Actuals	First Plan 1951-56 Actuals	Second Plan 1956-61 Actuals	Third Plan 1961-66 Actuals	Fourth Plan Targets 1973-74
Cotton						
Yarn	Million lbs	1,179	1,640	801 @	907 @	1,150 @
Cloth (mill made)	Million metres	3,720*	5,102*	4649	4,401	5,100
Jute	Thousand tons	892	1,150	1097	1,399	1,400
(iv) Food industries						
Salt	Million tons	2.7	3	3.7	5.4	N.A.
Sugar	Million tons	1.12	1.86	3.0	3.5	4.7
VI Transport Communications						
(i) Transport services						
Railways: freight carried	Million tons	91.5	114	156	203	265
Roads: surfaced, including national highways	Thousand miles	97.5	122	236**	284**	367**
Road transport: commercial vehicles on road	Thousand number	116	166	225	333	585
Shipping	Lakh GRT	3.9	4.8	8.6	15.4	35
Major ports: handling capacity	Million tons	20	25	40	50	55
(ii) Communications						
Post offices	Thousand numbers	36	55	77	97	128
Telegraph offices	Thousand numbers	3.6	5.1	6.5	8.8	9.0
Number of telephones	Thousand numbers	168	289	463	858	1,618

@ Million kg.
* Million yards
** Thousand km.

CHAPTER II

SURVEY OF NATURAL RESOURCES

Natural resources are natural materials or natural phenomena which man utilizes for economic activity. Agricultural land, forests, minerals, falling water, an estuary which contains a harbour and the climate and landscape of a resort town are among the natural resources of a country. The concept of natural resources is culture-bound: what does or does not constitute a natural resource, and the relative importance of different natural resources depend upon such cultural factors as the state of technology, the nature of demand, prices and socio-economic institutions. In India, while very small numbers of primitive shifting cultivators can obtain only a precarious living from vast areas of forest, large population of settled cultivators live next to them on small areas but at much higher levels of living. The advance from hunting and food gathering or primitive, shifting cultivation to settled agriculture is accompanied by an enormous increase in the efficiency of resource use and in the range of natural materials used. Similar changes take place with industrialization. Use of minerals or inanimate energy sources, which is very limited among agricultural peoples, is of central importance in the developed industrial countries. Per capita consumption of natural materials is much higher in these countries than in the under-developed countries which are predominantly agricultural or pastoral. The U.S.A. with only 6% of the world's population is estimated to account for more than half of the total annual world consumption of natural materials.

Efficiency of resource use is also much higher in the developed countries than in the under-developed countries: this is reflected in the higher productivity of agricultural land and of labour employed in natural resource exploitation activities in the former. An indication of the higher productivity of agricultural land is given by the data on yields of wheat and rice in selected developed and under-developed countries (Table 1). Crop yields have been increasing in the developed countries for a century or more as a result of improvements in techniques and management practices, especially use of improved, higher-yielding seeds, chemical fertilizers and pesticides. Yields per acre of wheat increased by 50% in Denmark between 1885-89 and 1949-51; similar increases took place in the other West European countries. A single technological advance, such as development of hybrid corn (maize), increased average yield of the crop in the U.S.A. by nearly 50% within a decade—from an average of 23.3 bushels per acre during 1931-35 to an average of 33.1 bushels during 1941-45. Further improvements in seed varieties, intensive use of chemical fertilizers, pesticides and other modern inputs

and improvements in farm management practices had raised yields progressively to 89.3 bushels per acre by 1969. Similar increases in crop yields with application of modern technology are now taking place in the under-developed countries. Yields of most crops have risen slowly in India during the last 15 years (Table 2). The yield of rice increased from 874 kg. per hectare in 1955-56 to an average of 1,054 kg. per hectare during 1967-69. The increase was greater in the case of wheat, from 708 kg. to 1,137 kg. in the same period, because the new, high-yielding varieties, introduced since 1966, have proved very successful in the wheat growing areas of northern India.

Differences in labour productivity in the natural resources sectors of the developed and the under-developed countries are much greater than differences in productivity of land; average productivity per agricultural worker, as measured by value of output, is nearly 34 times greater in the U.S.A. than in India.

Technological Advance: Besides raising productivity of land and labour used in the natural resource sectors, technological advance has been responsible, especially in recent years, for (i) development of synthetic substitutes for natural materials, ranging from metals to fibres, and (ii) an enormous increase in the spatial range of exploitation of natural resources. The most notable example of the latter is provided by extension of exploitation of oil and natural gas resources to the offshore areas. Offshore production of both has increased rapidly during the last decade and the recent discoveries in a number of regions, from the North Sea and the Mediterranean to various parts of the Western Pacific, especially the South China Sea, indicate that significant proportions of the world output of oil and natural gas will come in future from offshore sources. Exploitation has been confined so far to shallow, continental shelf areas; but the technology is advanced enough for development of resources located at greater depths. The sea floors may become important sources of other minerals also in the not so distant future.

Technological advance is often trigerred off by shortages resulting from interruption of supplies, as during a war, or from progressive depletion of supply sources. Development of synthetic rubber, nitrogeneous fertilizers and fibres like nylon have all resulted from war-time shortages of natural materials. Exploitation of offshore petroleum sources is a response to progressive depletion of on-shore oil-fields in major producing countries, such as the U.S.A., and the failure of new discoveries to keep pace with the rapid growth of demand—7 to 8% a year during the post-war period. On the other hand, there are innumerable examples of mineral deposits ceasing to be worked or crops or other natural products not being produced because of discovery of new, richer deposits, or availability of better or cheaper substitutes. The coal industries of

the U.S.A. and Western Europe have been depressed during most of the post-war period because of progressive increase in the proportion of energy derived from oil and natural gas in these countries. Cultivation of indigo stopped in India after the development of aniline dyes.

Abundance or scarcity of natural resources are relative terms which describe the demand-supply relationship. The latter depends in turn, on such factors as the size of the population and its level of living (demand) and the levels of technology and organization (supply). The expression, 'high pressure of population' on land, used so frequently for India, merely indicates that at the present levels of technology and organization, agriculture does not provide to the population of the country, food and other agricultural products, commensurate with its demands. A significant change in any one of the variables will change the relationship. Thus, the recent success of the high-yielding varieties of cereals (change in technology) has not merely relieved food shortage but has also changed the long-term outlook for increasing the food output to meet the increases in demand resulting from growth of population and rise in per capita consumption with increase in income. Accordingly, the natural resources of India have been viewed here in relation to the size of the population (547 million in 1971); its rate of growth (2.3% a year during the 1960's); the present levels of production and consumption of primary products, and projections of these to 1980-81, contained in the Fourth Five Year Plan.

Natural Resources in the Indian Economy: As in most other under-developed countries, most of the population of India is dependent upon agriculture and other primary activities which consist in direct exploitation of natural resources. Nearly three-fourths of the labour force is engaged in primary activities, with 70% in agriculture alone. Agriculture contributes about half of the gross national product; forestry and mining contribute about 1% each, and fishing accounts for about 0.5%. But in contrast to most other under-developed countries in which primary products are the major source of export revenues, India is a net importer of these products. In 1968-69, the value of agricultural and mineral imports was nearly 50% higher than that of exports (Table 3). Furthermore, according to current projections, the values of agricultural and mineral exports and imports will just balance by 1980-81, despite rapid expansion of the exports and stoppage, during the 1970's, of imports of foodgrains. As the following survey indicates, the natural resources of India are varied and provide an adequate basis for building a diversified modern economy. But they are not of such magnitude that exports of primary products could finance economic development in a significant way. The high pressure of population on land limits prospects of exports of agricultural products and deficiencies of petroleum and metallic

and non-metallic minerals have necessitated sharply rising imports of these with industrial development.

Knowledge of Natural Resources: Knowledge of natural resources is much better in the case of India than in most under-developed countries. Basic resource survey agencies have been in existence for a century or more and systematic surveys and investigations of resources have been undertaken by them. The Trigonometric Survey of India was started in 1802, although the beginning of the Survey of India goes back further to the Survey of Bengal by James Rennel in 1767. During the 19th century, the Survey of India covered the entire country and several adjacent countries with topographic maps. The maps were periodically revised, but the work fell into arrears during World War II and the post-Independence period, because of other urgent demands on the resources of the Survey. Cadastral surveys formed an integral part of the system of land revenue administration which was established by the British. Large scale maps were prepared for all 'settled' villages in all the British provinces and in a number of princely states. In addition, detailed data on topography, climate, soils, drainage and the local social and economic conditions were collected during the periodic 'settlement and survey' operations that were undertaken in all areas of 'temporary settlement' (of land revenue) and were incorporated in the Settlement Reports and in the records maintained by the Land Revenue Department. These reports and records have few equals in the world for the wealth of local data that they contain. The field-by-field inspection, conducted by the village accountant (known as *patwari* in North India, *talati* in Maharashtra and by other local terms in other regions) during every crop season, still forms the basis of data on land utilization and crop production. Surveys of forests were undertaken similarly as part of the system of forest administration. Forest areas were mapped and detailed information on forest types, nature and density of vegetal cover, species of plants and wild life, which is of great scientific value, was collected. The Geological Survey of India, established in 1848, had prepared the first geological map of India as early as 1877. The map was revised in 1911 and again in 1933. Systematic geological mapping had been completed for one-fourth of the area of India by the time of Independence and smaller scale maps had been prepared for another one-eighth. Important mineral-bearing areas, such as coal-fields, had been surveyed in greater detail.

Besides surveys by the established survey agencies, valuable work on assessment of specific natural resources was done by various commissions and committees that were set up from time to time. The Irrigation Commission and the Electricity Commission made in the early years of this century detailed estimates of the irrigation and hydro-electric potentials respectively. Perhaps the principal deficiency in the pre-Indepen-

dence system of surveys was in respect of survey of soils. Systematic soil surveys were undertaken only for small areas, mainly areas of irrigation projects, in which they were needed for crop planning or correction of soil defects such as salinity or alkalinity. For the remaining agricultural areas, general qualitative descriptions of soils were contained in the Settlement Reports. They were useful for administrative purposes, but did not have systematic data on fertility characteristics or chemical composition of soils. Moreover, since a scientific scheme of classification of soils was not evolved, the descriptive data had limited value for a systematic survey of soils.

Work on mapping and surveys of natural resources has been expanded greatly under the five-year plans. The older survey agencies, such as the Survey of India and the Geological Survey, have been expanded in order to enable them to undertake larger programmes of work, and new agencies have been created to undertake specialized tasks or surveys in fields which had not been covered earlier. The Survey of India, which has had to undertake, in addition to its normal work of revision of topographic maps, topographic surveys in areas of various irrigation and other projects to provide base maps for them, has been greatly expanded and use of modern survey techniques, such as aerial photography, has increased greatly in its work. The Geological Survey has been similarly expanded in order to enable it to undertake detailed surveys and assessment of reserves of coal, iron ore and other minerals. The groundwater survey work of the GSI has also increased and is supplemented by groundwater investigations by the Exploratory Tubewell Organization of the Ministry of Agriculture as well as by the State Governments. The Indian Bureau of Mines was established in 1950 to undertake economic assessment of mineral resources and to formulate programmes of development. The Oil and Natural Gas Commission, established in the late 1950's to undertake exploration and development of petroleum resources, has been responsible for major discoveries of oil and natural gas in Assam and Gujarat. The Central Water and Power Commission, established in 1945, has responsibility for co-ordination of hydrological investigations and assessment of water resources. It has revised the estimates of irrigation and hydro-electric potentials, made earlier by the Irrigation Commission and the Electricity Commission respectively. A Soil and Land Use Survey has been established under the Indian Council of Agricultural Research and systematic soil surveys are being undertaken by it in co-operation with the State Departments of Agriculture. The country-wide fertilizer trials, undertaken since the early 1950s under the direction of the Indian Council of Agricultural Research, are yet another noteworthy aspect of work on soils. The national laboratories and institutes of scientific research also undertake studies relating to evaluation or utilization of natural resources. The work of the National Metallurgical Laboratory

on metals and of the Central Fuel Research Institute on coal deserve particular mention. The areas covered by the different natural resource surveys by the end of the Second Five Year Plan are shown in Table 4.

But experience under the Plans has demonstrated the need for further expansion or acceleration of work in some directions, greater use of modern survey and mapping techniques and more adequate economic assessment of natural resources. Investigations of soil fertility and of groundwater will need to be expanded and improved further in order to provide data for intensive use of chemical fertilizers and efficient water management which are essential for the successful use of the new high-yielding varieties of cereals or other programmes of intensive cultivation. Modern survey techniques, such as aerial photography, aero-magnetic survey and remote sensing, which have advanced very rapidly in recent years but which are not used adequately by the Indian survey agencies, will need to be used much more. The use of these techniques reduces the time requirements of surveys and preparation of maps: makes possible surveys of inaccessible areas and aids location or estimation of reserves of minerals and other natural resources. Precise estimation of coal and iron ore resources began to be undertaken when large programmes of expanding production of these minerals were initiated under the Second Plan. Similar surveys of other important minerals, such as bauxite, are an important part of the national resource inventory and should be undertaken. Another essential activity is illustrated by the work of the Energy Survey of India Committee (1965) which made an overall assessment of energy resources of the country and projections of demand upto 1986. The projections are being constantly revised on the basis of new discoveries or more precise estimation of the known energy resources and trends in demand.

I. Land

Topography and Climate: Forty three per cent of the geographical area of India is plain, another 28 % is plateau and less than 30% is under hills and mountains (Table 5). It has been estimated that 62 % of the total area is topographically usable. The distribution of temperature and rainfall is also favourable for utilization of a large proportion of the area for agriculture or other productive purposes. Temperatures over the whole of India, except above certain altitudes in the Himalayas, are high enough to permit crop production throughout the year. The distribution of the geographical area by zones of annual rainfall (Table 5), indicates that more than two-thirds of the total area is in zones with rainfall of 750 mm. and above, and only 2% is in the zone with rainfall below 250 mm. But, in most parts of India, rainfall is concentrated in the brief monsoon period of 3-4 months—the period extends to nearly 6 months in Kerala and parts

of Eastern India — and the rest of the year is practically dry. This means that, except where irrigation facilities are available, or the dry season crop can be sustained by sub-soil moisture, supplemented by the small rainfall during the dry season, crop production has to be confined to the monsoon period. As a result, only a small proportion of the cultivated area, about 15%, grows more than one crop in the year. Moreover, since there is great variation in the monsoonal and the dry season flows of rivers, large storage reservoirs have to be built for irrigation, generation of hydro-electricity or other purposes, and most rivers are not suitable for navigation.

Soils: In the soil map of India, prepared by the Indian Agricultural Research Institute, 27 broad soil classes, besides glaciers, have been distinguished. The areas under the classes are given in Table 6. The agriculturally important soils are generally grouped into three major groups — alluvial, black and red and yellow. Their distribution is as follows:

Soil Group	*Area (Million hectares)*	*Per cent of total area*
Alluvial, including coastal and deltaic	142.50	43.7
Black, including mixed black and red	60.31	18.5
Red and yellow, including laterites	61.93	19.0

The alluvial soils are found in the Northern Plain, the Plains of the East and the West Coast and in river valleys in the Peninsula. The largest area of black soils is in the western part of the Peninsula and is underlain by basaltic lavas, although the soils are found also, pure or mixed with red soils, in other parts of the Peninsula. Red and yellow soils are found mainly in the eastern and southern parts of the Peninsula which are underlain by ancient crystalline rocks. The structure, depth and texture of soils in different areas vary greatly with variations in the nature of the underlying rocks, topography, rainfall, drainage and other factors. In general, the black soils tend to be heavy, clayey and moisture-retentive— they have a tendency to fissure in the dry season; the alluvial soils are clayey or sandy loams while the red and yellow soils are light sandy loams. The alluvial soils and the black soils have higher natural fertility than most red and yellow soils. But all soils of India are low in nitrogen and organic matter and respond well to applications of nitrogeneous fertilizers and organic manure.

Land Utilization: Data on land utilization in 1950-51, 1960-61 and 1966-67 given in Table 7, bring out the trends in utilization of land for agriculture and other purposes during the period of the first three Five Year Plans. The projections of the cropped area and the

irrigated area to 1980-81, (Tables 8 and 9), indicate the likely trends in agricultural land use during the present decade. Taken together, the tables provide a synoptic view of agricultural land use over a 30-year period.

Agricultural Land: This is defined here to include 'net area sown', 'current fallows' and 'land under miscellaneous tree crops and groves' (Lines 9, 8b and 6 in Table 7). The total area of agricultural land was 154.4 million hectares in 1966-67. Arable land, defined somewhat differently by the Food and Agriculture Organization (FAO) of the United Nations, totalled 163 million hectares in 1968, or just over 50% of the total geographical area (Table 10). The latter figure is the highest among the large or medium-sized countries of the world, indicating (i) the influence of favourable physical factors such as the large areas, extent of plains and plateaus and very small extent of arid areal (annual rainfall below 250 mm), and (ii) extension of cultivation to a large proportion of the cultivable land. But, because of the large population of the country, arable land per capita is not high; the figure of 0.3 hectares is lower than the average for the world and is only one-third of the U.S. figure. About 15% of the sown area is multi-cropped (sown more than once in the year), while a fifth of the gross cropped areas (20.9% in 1966-67) is irrigated. Irrigation makes possible extension of cultivation to dry lands which would not be cultivated otherwise. More important, it raises productivity of croplands through increases in the intensity of cropping and in crop yields. Most of the multi-cropped area is irrigated, and the security provided by irrigation facilities is a major factor in intensive application of labour and other inputs to obtain high yields. The influence of irrigation on crop yields is indicated by the following data on yields of rice and wheat taken from the National Sample Survey, 16th Round (1960-61):

Crop	*Yield (Lbs. per acre)*	
	Irrigated	*Unirrigated*
Rice	1,204	761
Wheat	985	545

Figures are not available for later years, but the yield differentials between the irrigated and the unirrigated lands have probably increased after adoption of the high-yielding varieties, which are confined, almost, to the irrigated lands. The yield of wheat in Punjab-Haryana, where most of the crop is irrigated, was in 1961-62 81% higher than the yield in Madhya Pradesh where most of the crop is unirrigated; by 1970-71 it was more than three times as high :

State	*Proportion of cropped area irrigated (Per cent)*	*Yield (Kg. per hectare)*		*Increase in yield 1970-71 over 1961-62 (Per cent)*
		1961-62	1970-71	
Punjab-Haryana	71.1	1,243	2,173	75.0
Uttar Pradesh	59.1	1,013	1,286	27.0
Madhya Pradesh	10.4	685	657+	—4.0+
India	37.9 +1968-69	890	1,299	46.0

Moreover, since increases in output through use of modern technology (high-yielding seeds, chemical fertilizers, pesticides etc.) will continue to be concentrated, in areas with assured, adequate and well regulated water supplies (mainly irrigated lands), the productivity differentials between the irrigated and unirrigated lands will continue to increase (see below).

Non-Agricultural Land: This includes land under forests, permanent pastures and other non-agricultural uses (towns, villages, roads, railways etc.); land classified as 'culturable waste' and 'fallows other than current', as well as barren and uncultivable land of mountain and desert areas. The total area of non-agricultural land was 172 million hectares in 1966-67. The classification of non-agricultural land has been improved considerably during the period of the plans: a more detailed scheme of classification was adopted in the early 1950s, and there is more careful recording of actual land use. Even so, the figures of different classes of non-agricultural land do not give an accurate idea of the nature of vegetal cover on them, or actual land use or the land use capability. In the areas classified as 'forests', the nature of vegetal cover varies all the way from dense forest through open woodland to poor scrub. On the other hand, some areas classified as 'culturable waste' are wooded. Grazing of livestock is not confined to the small areas, classified as 'permanent pasture'. It is permitted in most forest areas and most of the 'culturable waste', fallow lands (current and other than current) and vacant cultivated fields are also used for it. The large livestock population of India — 228.9 million bovine animals and 96.5 million sheep and goats in 1966 — are supported in this way. Finally, not all the areas classified as 'culturable waste', are suitable for cultivation. The Working Group on Land Use Policy of the Union Ministry of Agriculture had stated, after a reconnaissance survey of these lands in 1960, that "Ten million acres might be the upper limit of the additional areas that might become available for arable farming out of the existing culturable waste during the period of about fifteen years beyond 1960-61."

An adequate inventory of the land resource will involve:

(i) further improvement in classification of land;

(ii) specifying the nature of vegetal cover on all non-agricultural lands;

(iii) indicating the land use capability of all lands, agricultural and non-agricultural, and the measures needed to effect changes from present to capability uses in lands in which such changes are required; and

(iv) approximate estimates of the costs of the measures.

The inventory will require surveys of land use and land use capability over large areas and feasibility studies for reclamation and other land development projects in selected areas. The changes in land use will include both extension of cultivation to suitable waste and fallow lands and retirement from cultivation of agricultural lands of very low productivity, those suffering from severe erosion or located in erosion-prone areas, such as steep hill slopes. It may be mentioned that large areas of waste and fallow land remain uncultivated only because they suffer from defects, such as severe soil erosion, infestation with weeds, salinity or alkalinity. The total extent of such areas; the extent of the areas which can be reclaimed economically and the costs of reclamation should be indicated by the surveys and studies.

Trends in Land Utilization: The changes in land utilization between 1950-51 and 1966-67 (Table 7), represent the combined effects of extension of reporting to the areas which were non-reporting earlier; improvements in classification and actual changes in land use. The three effects can be separated only by examining district-level data, particularly for States like Rajasthan and Madhya Pradesh in which extension of reporting was the maximum. However, the data of Table 7 bring out (i) the progressive reduction in the areas classified as 'culturable waste' and 'fallows other than current' and increase in the 'net sown area'; (ii) significant increase in the 'area sown more than once'; and (iii) a large, 45%, increase in the irrigated area. Reclamation of waste and fallow lands was relatively rapid during the 1950s, following land reforms, such as abolition of *Zamindari* and *Jagirdari*. The dispossessed *Zamindars* and *Jagirdars* reclaimed lands which had been left to them for 'personal cultivation', while their former tenants reclaimed waste and fallow lands to which they had acquired rights. The process was aided by loans and subsidies from the state governments. The increase in the irrigated areas was due primarily to the plan programmes of major, medium and minor irrigation. The programmes had created a total potential of about 18.5 million hectares by 1968-69, of which about 17 million hectares had been utilized.

Agricultural output increased at an average rate of 2.9% a year during the period 1949-50 to 1968-69 (Table 8). About half of the increase was due to increase in the cropped area, while the remainder was the result of improvement in productivity. Increase in the cropped area was most

rapid during the early 1950s and slowed down later, while improvement in productivity had the opposite trend. The rate of growth of agricultural output, projected by the Planning Commission for the period 1968-69 to 1980-81 is much higher than the rate achieved in any earlier plan period; achievement of the projected high rate is considered essential for meeting the increases in demand for food and other agricultural products resulting from increases in population and per capita consumption. The rate of population increase, estimated at 2.5% a year for 1968-69, is expected to decline to 1.7% by 1980-81 with decline in the birth rate under the impact of the family planning programme. But the decline will be more than compensated by increase in per capita consumption; the rate of economic growth is expected to go up from 5.5% during the period of the Fourth Plan (1969-70 to 1973-74) to 6% in the remaining period.

Three-fourths of the projected increase in agricultural output is expected to come from improvement in productivity, the rate of which is expected to go up from 2.7% a year during the Third Plan period to 3.7% during 1969-70 to 1980-81. The projected rate of increase in the cropped area is also quite high, 1.2% a year, or twice the actual rate of the Third Plan period. But less than half of the projected increase will be through extension of cultivation (increase in the 'net area sown'); the balance is expected to be contributed by increase in the 'area sown more than once' (Table 7). The intensity of cropping is projected to increase from 114.3 in 1966-67 to 124.5 in 1980-81, but to be as high as 150 on the irrigated lands. Gross irrigated area is also expected to increase rapidly by 4.2% a year, to reach a total of 58 million hectares by 1980-81.

The projected increases in both productivity and the intensity of cropping are closely related to use of the new high-yielding varieties of cereals. Use of the varieties has been the major factor in the increase in food output experienced during recent years — from an average of 82.5 million tonnes during 1961-62 to 1964-65 to an average of 99 million tonnes during 1967-68 to 1970-71, and it is expected to contribute two-thirds of the projected increase in foodgrain output during the period of the Fourth Plan Secondly, since the varieties have shorter growing seasons than the old varieties, multi-cropping is more feasible with them. But successful cultivation of the new varieties requires intensive use of chemical fertilizers, careful preparation of land and efficient water management. The last is best achieved in irrigated lands in which water supplies are adequate and assured, and can be effectively regulated to suit the requirements of individual crops. The emphases on extension of irrigation and on improvement in the quality of irrigation in the Fourth Plan, derive primarily from the water requirements of the new varieties. The principal programmes for improving the quality of irrigation are construction of wells and tube-wells and installation of electric pumps on

them. The programmes, initiated along with introduction of the new varieties in 1966, are being continued under the Fourth Plan and later through the 1970s. The emphasis on exploitation of ground-water is due partly to the large unexploited potential of the resource in some regions, but even more to the fact that water supplies from wells and tube-wells can be regulated much more effectively than supplies from canals or tanks. In Punjab-Haryana and Uttar Pradesh, where large areas are affected by salinity or water logging as a result of canal irrigation for several decades, the farmers have a preference for irrigation from wells and tube-wells. Moreover, as experience during the recent drought years 1965-66 and 1966-67 demonstrated, water supplies from ground-water sources hold up better during a drought than do those from surface sources, especially tanks.

Soil Erosion and Other Defects: Among the defects, such as soil erosion, infestation with weeds, salinity, alkalinity and water logging, which lead to deterioration or depletion of the land resource, soil erosion is the most serious, because it affects by far the largest areas. A detailed survey of soil erosion, estimating the toal extent of erosion-affected areas and classifying the affected areas by type and severity of erosion, has yet to be made; but according to a preliminary estimate, about 200 million acres (80.8 million hectares) of land in the country require protection by soil conservation measures. The most serious damage is done by ravine erosion and erosion by *chos* (hill torrents). Ravine erosion is widespread in Madhya Pradesh, Uttar Pradesh, Rajasthan and Gujarat. It is estimated to have destroyed about 1.4 million hectares in Uttar Pradesh alone, while the total area affected by it and associated severe gully erosion may be as large as 10 million hectares in these four States. Erosion by *chos* occurs mainly in the sub-montane area of Punjab-Haryana, where about 1,813 sq. km. are affected by it.

Soil erosion affects both agricultural and non-agricultural land. Large areas of agricultural land, especially in Peninsular India, are affected by gully erosion; the areas whose fertility is depleted by sheet erosion are much larger. But the most severely eroded lands are non-agricultural, in which erosion follows denudation of vegetation as a result of over-grazing and indiscriminate cutting of trees and bushes. Village pastures, 'culturable waste' and 'fallows other than current' need particular mention in this context. Since grazing is free for all livestock belonging to the villagers, the numbers grazed are generally excessive. The consequent over-grazing and absence of any measures for improvement of pastures, lead to progressive denudation of vegetation, and in turn to soil erosion, which spreads frequently to the adjoining agricultural lands.

Programmes for control of erosion and conservation of soil and moisture have to be drawn up separately for agricultural and non-agricultural land and have to include in addition to agronomic and engineering measures, economic and socio-institutional measures. In agricultural land, the most needed measures are contour-bunding, contour-ploughing, terracing, planting of legumes and other soil-enriching crops, and changes in the cropping pattern, particularly reduction of fallow periods. They have to be accompanied by technical and financial assistance (loans and subsidies) to the cultivators. In some areas, tenancy reforms which give the cultivators security of tenure and provide them with adequate incentives to undertake the improvements may also be needed. Some agricultural land, located on steep slopes and other erosion-prone areas, may need to be taken out of cultivation and put under pastures or forests. In non-agricultural land, the most important measures are effective control over grazing and felling and gradual rehabilitation of the eroded areas through pasture improvement or plantation of trees. Engineering measures, such as terracing and construction of check dams are needed in severely eroded areas. The village panchayats have to be given technical and financial assistance for efficient management of the lands which are under their jurisdiction. But in critical areas, such as the watersheds of major irrigation or multi-purpose projects, if management by the panchayats does not result in adequate control over erosion, management by the Forest Departments should be undertaken.

Infestation with deep-rooted weeds such as *kans* is a serious problem in parts of Madhya Pradesh, Rajasthan and Bihar. An estimated 4 million hectares have been rendered uncultivable by it. A large programme of reclamation of these lands with heavy tractors was started in 1948 by the Government of India. But it had to be given up after some time because of the high cost of reclamation and various organizational difficulties. Reclamation by the tractor organizations of the State Governments and by individuals, however, continues.

Salinity or alkalinity of the soil and water logging are generally associated with irrigation from canals. They arise from seepage of water from canals and distributaries and faulty irrigation practices. The total area of saline and alkaline lands is estimated at 6 million hectares; most of it is located in Punjab-Haryana, Uttar Pradesh and Maharashtra. The area affected by water logging is estimated at 1 million hectares and is located mostly in Punjab-Haryana. The remedial measures include flooding of the land to remove excess salinity or alkalinity; providing efficient drainage, and lining of the canals and distributaries (generally drainage with brick masonry) to prevent seepage. The new canals of the Bhakra Nangal and Rajasthan Canal projects have been or are being lined.

Programmes of soil conservation and correction of other soil defects have been undertaken since the First Five Year Plan and have been progressively expanded. The expansion of the former is indicated by the following figures relating to expenditures and the areas benefited during the first three plans, and the targets of the Fourth Plan:

Soil conservation programmes	*Plans*			
	First	*Second*	*Third*	*Fourth*
Expenditure (million rupees)	16	180	780	1,594
Area benefited+ (million hectares)	0.3	0.8	4.0	6.9

+Figures for the First and the Second Plan relate only to areas benefited by contour-bunding.

Since the areas affected by soil erosion and the investment needs of erosion control and soil conservation programmes are very large, it has been necessary to select priority areas for the programmes. In the first three plans, priority was given to agricultural land, catchment areas of river valley projects and certain non-agricultural lands from which erosion spread to threaten large areas of agricultural land. The priorities remain unaltered under the Fourth Plan, but conservation measures in the catchment areas of the projects have been intensified, because sedimentation surveys have revealed that in a large number of projects, the actual rates of siltation are higher than the rates assumed at the time of construction.

II. Water

Assessment of water resources is required for development of irrigation and navigation, generation of hydro electricity and meeting the domestic and industrial needs for water. These uses may be complementary or competitive. Irrigation and generation of hydro electricity are largely complementary, but irrigation and domestic and industrial use of water are largely competitive. Assessment of the water resources must include both surface flows and ground-water supplies and should indicate, in addition to the total quantities available, their location seasonal distribution and quality. In India as in many other countries, there is a hiatus between the geographical location of the areas and the seasons of the most urgent need for water and its availability in abundance, which limits possibilities of utilization of the available supplies of water and raises costs of utilization. A large proportion of the water supplies is located in zones with annual rainfall of 1,250 mm. and above, but the need, particularly for irrigation, is greatest in the zones of medium or low rainfall (below 1,250 mm.). The concentration of rainfall in the monsoon season further limits the scope for economic utilization of the

available water supplies. Defects in the quality of water also limit utilization in some areas; ground-water is brackish in large parts of Western Rajasthan. Pollution of river waters by discharge of urban and industrial wastes can affect their usability by communities or industries located downstream. The problem could become serious in the not distant future in case of river systems, such as the Ganga-Yamuna, on which a large number of cities are located.

The annual water balance of India has been estimated as follows:

	Million Hectare metres
Total precipitation	373
Evaporation	124
Surface flow	168
Seepage	80.9
Of which soil moisture	43.6
Annual enrichment of ground-water ..	37.3

One-third of the surface flow (56 m.h.m.) and 22 m.h.m. of ground-water are considered to be usable for irrigation. The ultimate potential of gross irrigated area had been estimated earlier at 70.85 million hectares; but the estimate has been recently revised to 82 million hectares. The increase is due to mainly to the larger possibility of multi-cropping, with use of the new high-yielding, short duration varieties of cereals. The progress of utilization of the potential under the plans and the projections to 1973-74 are as follows:

	Surface Water		*Ground-water*	
	Quantity (Million hectares mtrs.)	*Gross irrigated area (Million hectares)*	*Quantity (Million hectares mtrs.)*	*Gross irrigated area (Million hectares)*
Total Potential	56	60	22	22
Utilization:				
At beginning of First Plan (1950-51)	9.5	16.1	6.5	6.6
1968-69	20.5	25.0	10.9	10.9
1973-74 (Projections)	25.5	n.a.+	11.0	n.a+
Projected time period for full utilization of the potential	—about 20 years—		—about 15 years—	

+The projection of gross irrigated area for 1980-81, from both surface and ground-water sources, is 58.0 million hectares.

The estimate of the ultimate irrigation potential is based on detailed investigation of the potential of irrigation projects on the different river systems and of the ground-water supplies in different regions. The earlier total of 70.85 million hectares had been made up of 40.50 million hectares from major and medium projects and 30.55 million hectares

from minor irrigation works. The region-wise distribution of the potential of major and medium projects is shown in Table 11.

Sources of Irrigation: Somewhat over 40 per cent of the total irrigated area is served by canals; another one-third is served by wells and tube-wells and the balance gets water from tanks and other sources. The areas irrigated by canals and wells have increased more rapidly during the period of the plans, than that irrigated by tanks, while the area irrigated by other sources has declined:

Irrigation source	1950-51 Area irrigated (m/hectares)	1950-51 Per cent	1960-61 Area irrigated (m/hectares)	1960-61 Per cent	1966-67 Area irrigated (m/hectares)	1966-67 Per cent
Canals	8.3	39.8	10.4	42.1	11.4	41.4
Wells and tube-wells	6.0	28.7	7.3	29.6	9.5	34.5
Tanks	3.6	17.3	4.6	18.5	4.6	16.6
Others	3.0	14.2	2.4	9.8	2.1	7.5

The efficiency and dependability of irrigation from the different sources also vary considerably. In the areas irrigated by canals, supplies of water are generally more adequate and dependable to fields located at the head of an irrigation channel than to those located at the tail end. Supplies from tanks are less dependable than those from canals or wells during periods of drought, such as the two recent years 1965-66 and 1966-67. On the other hand, irrigation from wells can be regulated most efficiently to meet the requirements of crops because the irrigation source is entirely under the control of the individual farmer, and is also more dependable than those from tanks or canals.

Water for Domestic and Industrial Uses: Estimates of domestic and industrial consumption of water and projections of growth of consumption have not been made so far. This is a serious lacuna in assessment of the water resource which will affect efficient allocation of water among its competitive uses in particular regions. The requirements of water for domestic and industrial uses are not large, in comparison with those for irrigation, but they have increased rapidly in recent years, and will increase perhaps even more rapidly in future with acceleration of urban and industrial growth. The increases in supplies have not kept pace with increases in demand in the case of most large cities of the country, so that water shortage has become chronic. In Bombay, where water shortage has persisted since World War II, the demand was estimated at 350 million gallons a day in 1965, when the supply was only 210 mgd. In Calcutta, the water shortage had become so acute by the early 1960s, that 'emergency' water supply schemes had to be undertaken to relieve it.

One reason for the failure of supplies to increase along with increases in demand is the high cost of storage, transport and distribution works. The cost of the expansion programme for Bombay to meet the projected growth of demand upto 1980-81 was estimated at 1671 million rupees. In case of Madras, the cost of increasing supplies from conventional sources was estimated to be so high, until investigations revealed suitable ground-water supplies near the city, that desalination of sea water was considered as a possible source of supply. The cost of desalination, although still high in comparison with water supplies from conventional sources, has fallen rapidly during the last two decades with advances in desalination techniques. It is still falling and desalination is beginning to be competitive with alternative sources of supply where the cost of the latter is high, or where desalination can be combined with generation of electricity and industrial development, such as manufacture of chemical fertilizers. Schemes for establishment of multiple desalination — power—fertilizers complexes, such as the one along the Saurashtra coast have been considered by the Government of India. A comprehensive survey of domestic and industrial water needs and formulation of a long-term programme for meeting them are urgently needed. The programme should include also measures to check pollution and maintain the quality of water at acceptable levels, especially in densely populated areas such as the Ganga-Yamuna basin.

III. Sources of Energy

Per capita consumption of energy is an important indicator of economic development; it is much higher in the developed countries than in the underdeveloped countries. Figures for selected countries (Table 12) indicate that consumption in the U.S.A. was more than 50 times that in India in 1969, while that in Japan was nearly 15 times. The Indian figure is itself nearly four times the figure for Burma. Moreover, per capita consumption of energy has increased in India with economic development; the 1969 figure of 193 kg. of coal equivalent was 75 per cent higher than the figure of 110 kg. for the early 1950s.

Coal, oil and natural gas, hydro-elecricity and nuclear fuels are the principal sources of energy in the developed countries. Commercial use of nuclear energy began only in the 1960s, but its growth has been so rapid that nuclear power stations, now under construction, represent substantial proportions of the new power generating capacity in the western developed countries. The three Indian nuclear power stations, located at Tarapur, Kotah and near Madras, will add more than 1 million kw. of generating capacity by the early 1970s. Coal is the most important source of commercial energy in India. In 1960-61, it contributed a little more than 20% of the total energy supply (Table 13). Oil

is a close second, but hydro-electricity, which contributed less than 3 per cent of the total energy supply in that year, is of minor importance. But all the commercial sources of energy contributed only 40 per cent of the total energy supply in 1960-61, and the remaining 60 per cent came from non-commercial fuels, such as cow-dung, fire-wood and vegetable wastes. Use of commercial fuels is confined to the modern sectors of the economy and to the urban areas; the energy needs of the rural population, 80 per cent of the total, are met almost entirely by non-commercial fuels. A study of rural fuel consumption, conducted by the National Council for Applied Economic Research, revealed that in 1960-61 only 5% of the energy needs of the rural population was met by commercial fuels. The preponderance of non-commercial fuels in rural energy supplies reflects the subsistence nature of the rural economy; the fuels are used because they do not have to be purchased. But it constitutes wasteful use of resources. Use of cow-dung for fuel is particularly wasteful because it deprives the soil of a most valuable organic manure. Some of the vegetable wastes could also be used in more productive ways. *Bagasse* could be a very useful supplementary raw material for manufacture of paper. The demand for paper is increasing rapidly and the principal raw materials, bamboo and *sabai* grass, are in short supply. Supplies of fire-wood are dependent upon large areas being kept under fire-wood plantations. While this may be the optimum land use for some areas, for most others it is not. But progress in changing rural consumption patterns is not likely to be rapid; non-commercial fuels are expected to continue to meet most of the energy needs of the rural population, and their consumption is expected to increase. The Energy Survey of India Committee had estimated a 43 per cent increase in energy generation from non-commercial fuels by 1980-81, although its contribution to total energy supplies was expected to decline from 60.4 per cent in 1960-61 to 27.8 per cent by 1980-81, due to more rapid growth of energy generation from commercial fuels (Table 13). The Committee made three projections of growth of demand for energy, based on different assumptions relating to growth rates of national income and industrial production. The projected values of the index of energy consumption in 1980-81 (1960=100) varied from a low 264.2 to a high 368.3. The intermediate projection, based on annual growth rates of 6 per cent in national income and 8½% in industrial production, has been used in Table 12 and in this section. The estimates of reserves of energy sources, given in the following paragraphs, are also based on the report of the committee.

Coal: The principal coal-fields of India are in the eastern and central States of Bihar, West Bengal and Madhya Pradesh. Outside of this area, there is only one important coal-field, the Singareni in the Godavari valley of Andhra Pradesh, although there are lignite deposits at Neiveli

in Tamil Nadu, in the Assam Hills and at Palana in Rajasthan. The concentration of coal-fields in one region and absence of water transport facilities from it to the consumption centres are handicaps for industrial and economic development; the cost of transport of coal by rail to most points in Southern and Western India is very high.

The total reserves of coal are large, but most of the coal is of poor quality. It is high in ash and has low calorific value. The reserves of coking coal, suitable for metallurgical uses, are small, being limited to the coal-fields of Bihar and West Bengal, principally the Jharia field of Bihar. But much of the coking coal also has a high ash content and has to be washed before being used for metallurgical purposes.

The Energy Survey of India Committee estimated that out of the total reserve of 5,800 million tonnes of coking coal down to 610 metres in the Jharia coal-field only about 1,800 million tonnes would become available for industrial use. Its calculation was as follows:

Seams IX/X to XVIII	*Proved*	*Indicated*	*Inferred*	*Total*
		million	*tonnes*	
Down to 610 metres (2,000 ft.)	2,510	2,504	788	5,800
610 to 1,220 mtrs. (2,000 — 4,000 feet)	11	406	1,820	2,237
Total to 1,220 metres (4,000 ft.)	2,521	2,910	2,606	8,037
Mined coking coal 50% of 5,800 million tonnes				2,900 million tonnes
Washery yield 50% of 2,900 million tonnes				1,450 million tonnes
Addition of blendable 25% of 1,450 million tonnes				360 million tonnes
Total:				1,810 million tonnes

The quantity of usable coal could in fact be larger. Mining losses could be considerably less than 50%; the committee referred to a view of the Department of Mines and Metals of the Government of India according to which the losses could be reduced to 25%, raising the recovery ratio to 75% with stowing. Some production could also be expected from reserves below 610 metres, which have been entirely ignored by the committee. But these modifications do not alter materially the general picture of 30-40 years' supply of coking coal for an iron and steel industry of moderate size producing about 50 million tonnes of pig iron a year. The need for conserving coal has been recognized by the Government of India for a long time and a number of conservation measures have been taken. These include stowing, establishment of washeries, blending of weakly coking or non-coking coal with strongly coking coal, and substitution of coking coal by non-coking coal for non-metallurgical uses. The reserves of non-metallurgical coal, currently estimated at 115,000 million tonnes, are quite large. Recent advances in techniques of power generation from low quality coal and of transmission of power at high voltage over long distances favour construction of large, coal-

based power stations near the coal-fields and supply of power from them over large areas. These developments as well as advances in the technology of gassification of coal could reduce to a considerable extent the disadvantages of concentration of the coal-fields in one region of India.

Petroleum: The position regarding reserves of petroleum was summarized by the Energy Survey of India Committee as follows:

"India possesses an area of about one million sq. kilometres of sedimentary rocks which theoretically represent an oil potential; this constitutes nearly one-third of the country's total area. As the available geological knowledge regarding several of these sedimentary basins is meagre and of a very general nature, it is for the moment impossible to make any firm assessment of possible petroleum reserves. Of the areas so far explored for oil, much the most promising are those in Assam and Gujarat. The figures given for estimated reserves are constantly changing in the light of new knowledge. Recent guesses — and they can be little more — are that proved reserves in Assam may amount to 50 million tonnes and those in Gujarat to another 50 million tonnes. Both these areas are being intensively studied and it is too soon to be at all certain what the total reserves may be. There are approximately 100 million tonnes of proved reserves; including possible inferred reserves, the total may conceivably reach 175 million tonnes ... We are informed that the proved and inferred natural gas reserves, as estimated on the basis of present explorations, are 31.5 million cubic metres or only about 50 million tonnes of coal equivalent determined on a calorific equivalent basis."

There have been promising new discoveries in recent years, especially in the offshore area of the Gulf of Cambay. Estimates of petroleum reserves are liable to change continually with new discoveries, and further exploration in the Cambay area could lead to large oil finds, altering materially the above assessment. However, the Planning Commission has assumed only a modest increase in domestic production of petroleum — from 6 million tonnes in 1968-69 to 8.5 million tonnes in 1973-74 — and continued dependence upon imports for the greater part of the petroleum needs. Consumption of petroleum has been projected to increase from 16.1 million tonnes in 1968-69 to 26 million tonnes in 1973-74.

Hydro-Electricity: The estimates of the hydel power potential, made in the early years of this century by the Electricity Commission, have been revised in recent years, after further surveys and more precise estimation, by the Central Water and Power Commission. The ultimate potential is now estimated at 41 million kw. at 60 per cent load factor. Only 3.6 per cent of the potential had been developed by 1960-61. The total potential, the proportions of the potential developed and the demand for electricity in the different regions of India are given in Table 14.

Both Southern India and Northern India, which are far from the coal-fields, have large potentials, while Eastern India in which most of the coal-fields are located, has only a limited potential. Relatively high percentages of development of the potential in Southern and Western India, mostly in stations located along the slopes of the Western Ghats, reflect the comparative advantage of development of hydel power in these regions. On the other hand, as much as 30% of the total potential of the country is located in Assam, where the demand for electricity is very small, development is negligible at present and could remain limited. Other handicaps in development of the hydel potential are difficult communications; soft, unstable rocks in the Himalayan region and the susceptibility of the region to earthquakes; concentration of rainfall in the monsoon season, and fluctuations in rainfall from year to year. Because of these rainfall characteristics, storage works have to be large and thermal power stations have to be built alongside hydel stations, as standby power sources.

Nuclear Fuels: The nuclear fuels found in India are uranium and thorium. Deposits of uranium have been located in Bihar, Rajasthan and Tamil Nadu. The Bihar deposits have been investigated in some detail and 'indicated' and 'inferred' reserves in them are estimated to be in the neighbourhood of 10,000 tonnes. The reserves of thorium are much larger and it appears that, in the long run, development of nuclear energy will be with use of thorium. "There are some 500,000 tonnes of thorium, mainly in two deposits. About 200,000 tonnes are contained in the very rich (9% concentration) monazite sands of Kerala ... An even larger deposit in the Ranchi Plateau, partly in the Bihar region and partly in Bengal .. contains some 300,000 tonnes of thorium in monazite of a concentration of 10 per cent The 500,000 tonnes of thorium has been described as equivalent to all the world's known uranium in ore containing 1% and above." But the use of thorium for generation of energy awaits the solution of a number of technical problems, especially development of suitable breeder type reactors. When suitable breeder type reactors are commercially available, India will be richly endowed with nuclear fuels.

Non-conventional Energy Sources: Coal, oil and natural gas are fossil fuels. Generation of energy from them only means using up past storages of energy. Much experimental work is in progress at present on utilization of currently produced energy — solar, wind, tidal, wave and geothermal. The problems relate mainly to reducing costs of obtaining energy from these sources to competitive levels. Work on solar energy is of particular interest to India because of the large number of sunny days during the year in most parts of the country. A technological

breakthrough in this area could change the energy outlook for India significantly.

IV. Minerals other than Fuels

This collective term may be used to include ferrous and non-ferrous metals and the non-metallic minerals. The latter is a very diverse group however, including minerals ranging from sulphur and common salt to building stones and clays. India has large resources of some of these minerals, but is deficient in others; an indication of the resources and deficiencies is given in Table 15, in which are included data on estimated reserves of about 20 selected minerals.

India's resources of iron ore are among the world's largest, are of high quality and are well distributed regionally. The largest deposits are in the eastern and central States of Bihar, Orissa and Madhya Pradesh but there are large deposits also in the South, in Tamil Nadu and Mysore, and in the West, in Goa and Maharashtra. India has large deposits also of high grade manganese ore and of limestone and dolomite and is thus well supplied with all the raw materials of the steel industry except coking coal.

But the situation is different in respect of non-ferrous metals, such as copper, lead, zinc and tin, and some non-metallic minerals, such as sulphur and rock phosphate. The known deposits of all of them are small and the demands are met mainly or entirely by imports. The principal deposits of copper are in Bihar, Rajasthan and Andhra Pradesh. Domestic production had until recently been only from the Ghatsila mine in Bihar but the Khetri deposit in Rajasthan has been developed and development of the Andhra Pradesh deposits is being considered. Production of lead and zinc is only from the Zawar mine in Rajasthan. There is no indigenous production of tin. The deficiency of copper is made up to some extent by the existence of large deposits of bauxite. Aluminium can be a substitute for copper in the electrical industry and has also a wide variety of other uses. It is a versatile metal, whose consumption has increased rapidly in recent decades. The bauxite deposits are of high grade and are well distributed regionally, being located in Bihar, Orissa, Madhya Pradesh, Maharashtra and several other States. The principal problem in their development is the high cost of power which is needed in very large quantities in conversion of alumina to metallic aluminium. The prospects of development appear most favourable in Bihar and Madhya Pradesh where large blocks of relatively cheap power could become available from thermal stations based on low grade coal.

Among the non-metallic minerals, there are large deposits of mica, principally in Bihar and Rajasthan, which are worked mainly for export.

The most notable deficiencies are those of sulphur and rock phosphate, raw materials of the chemical industry. There are no known deposits of elemental sulphur. There is a deposit of pyrites in Bihar, but production remains small because of the high cost of recovery of sulphur. Large deposits of high grade limestone and dolomite are found both in Eastern India in the vicinity of the coal-fields and the iron ore mines, and in other parts of the country. Building stones of great variety are found in different parts of Peninsular India. The white marble of Makrana in Rajasthan; the red and yellow sandstones of Rajasthan and Madhya Pradesh, and the granites of South India are the best known among them. Common salt is obtained by evaporation of sea water all along the coasts, and also from Sambhar Lake and salt wells in Rajasthan. The largest manufacture of sea salt is in Gujarat. The salt industry offers considerable scope for increasing recovery of by-products, such as potassium chloride.

V. Forests

There is a large variety of forest types in India — from the tropical evergreens of Kerala and Assam to the conifers of the Western Himalayan region, and from the tropical deciduous of Madhya Pradesh and Orissa to the thorny scrub of Rajasthan. The variety of species is even greater. This variety of forest types and species is often found within short distances. Thus one can see within a small area of the Himalayan region the entire range from the luxuriant sub-tropical vegetation of the *terai* and the foothills to the conifers of the higher slopes. The variety of wild life matches the variety of vegetation; the two could be very valuable in development of recreation industries.

The total area under forests was reported to be 62,335,000 hectares or 623,350 sq. km. in 1966-67 according to the statistics on 'Classification of Area', collected by the Revenue Departments of the State Governments (Table 7). But according to the 'Forest Statistics', which are collected by the Forest Departments of the State Governments, the total area was 752,982 sq. km. (Table 16). The discrepancy between the two figures is due to differences in the methods of classification of 'forest' adopted by the two departments. The distribution of the forest area, as reported in the 'Forest Statistics', by type of forest, ownership, management and economic value, is given in Table 16. Coniferous forests, which occupy 6 per cent of the total forest area, are confined to the Western Himalayan region — in Uttar Pradesh, Himachal Pradesh and Jammu and Kashmir. Among the other forests, the most valuable are those of *sal* and teak, which cover together 189,000 sq. km. or about one-fourth of the total forest area. Most of the area of 'miscellaneous forests' is covered by poor scrub. More than 90 per cent of the

total forest area is under the ownership and management of the Forest Departments, the remainder being with the panchayats and individuals. But only the Reserved Forests of the Forest Departments are managed according to scientific management practices and have good stands of timber. These practices cannot be followed in the Protected Forests because the local people have virtually unrestricted rights of felling of trees and of grazing of livestock in them. Large areas of such 'Forests' suffer from severe soil erosion resulting from denudation of vegetation. The condition of most 'Unclassed Forests' is equally bad or worse. The classification of forest areas by economic value indicates that as much as one-fourth does not contain any merchantable timber.

Consumption of timber and other industrial wood was estimated at 11 million cu. metres in 1968-69 and was expected to increase by 1973-74 to 16-17 million cu. metres. In order to meet the increasing demand for industrial wood, a massive programme of clearing the existing forests and planting the cleared areas with quick-growing species, suitable for industrial use, was initiated in 1961. The programme represented a significant departure from the earlier forest management practices, which had been based on the principle of sustained yield through natural regeneration. The new approach emphasized quicker growth and higher yields with the aid of modern plantation practices. By 1968-69, 0.65 million hectares had been covered by the programme. In order to extend coverage by it, a pre-investment survey of 75,000 sq. km. of forest area is being undertaken during the Fourth Plan period.

Pulp for paper and other products is manufactured in most other countries from coniferous softwoods. The area of coniferous forests being small in India, the pulp is manufactured from other materials. Paper pulp is manufactured mainly from bamboo, but the rayon industry depends upon imported pulp. The forest development programmes, included in the Fourth Plan, aim to achieve self-sufficiency as early as possible, in major forest-based products such as pulp, paper, newsprint, wood panel products and matches. Furthermore, sizeable exports of paper and wood panel have been projected.

The increasing demand for fire-wood — a 25 per cent increase between 1960-61 and 1980-81 had been projected by the Energy Survey of India Committee (Table 12) — can also be met efficiently by plantations, located in waste-lands and other suitable areas, in the vicinity of towns and villages. The plantations can be managed directly by the Forest Departments, or by the village panchayats under the direction of the Forest Departments. The need for such plantations has been recognized for over a century — the first statement on Indian Forest Policy, made in 1870, included their establishment as one of its principal objectives — and plantation programmes have been undertaken. But they have not

been adequate, and a serious shortage of fire-wood is apprehended in rural areas. The Fourth Plan proposes an expansion of the programme and emphasizes the need for co-ordination of efforts among the various agencies concerned with it.

Afforestation in critical areas forms an essential part of erosion control and soil conservation programmes. The obvious first priority areas for the programmes are the catchments of major irrigation and river valley projects, in which afforestation is needed to prevent rapid silting of the reservoirs. Afforestation programmes have been undertaken in several catchment areas, from the Second Plan period and, as mentioned earlier, have been progressively expanded.

The recreation and tourism industries are just beginning to develop in India, but they have a large potential for growth. In order that forest areas may be utilized adequately for these industries, access to them has to be improved by construction of good roads and suitable facilities have to be provided for the stay of visitors. At the same time, adequate steps have to be taken for protection of wild life and natural vegetation. National Parks and Wild Life Sanctuaries have been established in most countries to achieve the twin objectives of recreation and protection. A number of National Parks and Game Sanctuaries have been established in India in recent years and facilities for travel to, and stay in, them are being progressively improved. The parks and sanctuaries are attracting considerable numbers of visitors, including foreign tourists, and can attract much larger numbers in future because they offer an opportunity to see animals, such as the tiger, elephant, bison and rhino, in their natural habitats, and also to observe flora of great variety and beauty. But there is still much surreptitious killing of wild life and destruction of natural vegetation in these areas. Species, such as the *cheetah*, and several species of deer have already become extinct and even the celebrated Indian tiger is seriously threatened. Measures for protection of wild life and natural vegetation will need to be made much more effective, *and soon*, if the rich wild life and natural vegetation of the Indian forests are not to be lost irretrievably.

VI. Fisheries and Resources of the Sea

India has a coastline of nearly 5,635 km., but exploitation of fisheries and other resources of the sea has remained an activity of minor economic importance. Consumption of fish, marine or fresh-water, is small — less than 3 kg. per capita in a year. Fish is a significant items in the diet only of the people of coastal areas, or of States such as West Bengal in which fresh water fish is plentiful. Limited development of marine fisheries is due partly to unfavourable physical conditions — narrow continental shelf and a straight coastline with few good harbours on it. But cultural

and techno-economic factors have also hampered development. Fisheries along the coast of Gujarat were not exploited until recently because the local people are vegetarians. Secondly, since fishing has traditionally been done in small, non-power-driven boats, it had to be confined to a narrow zone of a few miles from the coast and had to be virtually suspended during the monsoon season and other stormy periods when the boats could not go out to sea.

The total catch of fish was estimated at 1.5 million tonnes for 1968-69. The Fourth Plan has indicated a target of production of 1.97 million tonnes, consisting of 1.4 million tonnes of marine fish and 0.57 million tonnes of inland fish for 1973-74. The bulk of the marine fish catch consists of mackerel and sardines, although in recent years there has been a rapid increase in the catch of prawns, mainly for export.

Fishery development programmes under the Five Year Plans have concentrated on the following:—

(i) for the marine fisheries, mechanization of fishing boats and use of improved tools by the fishermen; use of trawlers for deep sea fishing, and provision of facilities for storage and transport of fish from the coastal areas to the major cities; and

(ii) for the inland fisheries, stocking of reservoirs, streams and other water bodies with fingerlings.

The use of mechanized fishing boats has increased progressively; the Indo-Norwegian Fishery Development Project, which began in Kerala in 1952, has made a major contribution to the increase. By 1968-69, a total of 7,800 mechanized boats were in operation, and the number is proposed to be increased by 5,500 during the period of the Fourth Plan. The plan programmes include also addition of 300 trawlers, construction of additional facilities for storage and transport of fish and expansion of the fish stocking programmes in inland waters. A noteworthy development of recent years has been rapid increase in exports of fish and other marine products, especially prawns. The value of the exports increased from Rs. 46 million in 1960-61 to Rs. 340 million in 1969-70.

Other Resources of the Sea: Reference has been made above to exploitation of off-shore oil and natural gas resources, manufacture of common salt from sea-water and desalination of sea-water. These constitute, however, only the beginnings of exploitation of the resources of the sea. The sea floor is rich in minerals and technology is now sufficiently advanced to bring exploitation of these within the range of possibilities of the near future. Plant life of the sea also has immense potential for supplying food and raw materials. Marine algae are used for food in Japan and China and sea food can be processed for being added to cattle feed and for extraction of substances such as agar agar. The possibilities of economic exploitation of plant life of the sea are dependent, to a large degree, on technological advance.

Conclusion: This review has sought to relate the availability of natural resources of India to the present and projected near future (upto 1980-81) demands on them. The picture that has emerged is one of high pressure of population on land and forests; adequacy (or abundance) of some minerals and energy sources, but deficiency of others. A somewhat longer perspective, say upto the year 2000, will indicate rapidly increasing demands on natural resources to meet the needs of population growth and economic development. The populaton of India may be anywhere between 0.89 billion and 1.1 billion in that year; the lower projection of the Planning Commission, is based on expectation of a significant decline in fertility from the early 1970s, while the higher projections of the United Nations is based on the assumption of later decline in fertility. National income will be more than 7 times the 1968-69 figure, if the rates of growth of 5.5 to 6% up to 1980-81 and at least 6.5% thereafter, projected by the Planning Commission, are achieved. Estimating the magnitudes of demands on specific natural resources, or of specific primary products, is a complex undertaking, and the estimates have their limitations; the most recent estimates for the U.S.A., made in 1963, are already outdated because of rapid technological change. But absence of detailed estimates need not stand in the way of perception of the overall situation relating to the demands on natural resources, or of the measures needed to ensure that deficiencies of resources do not prove to be a serious impediment to economic development.

The growing demands for primary products will have to be met mainly from domestic production because, as experience during the drought years of the 1960s demonstrated, the need to import large quantities of primary products puts severe strains on the economy and the process of economic development is disrupted. But rapid enough expansion of domestic production will require, especially in agriculture, forestry and fishing, rapid modernization of production techniques; the slow rate of modernization of the period 1950-1965 will not be adequate. The high-yielding varieties programme in agriculture, the plantation programme in forestry, and mechanization of fishing constitute significant beginnings of the modernization process. In the mineral and energy sectors also, there is a very large potential for raising productivity and expansion of the usable resources through further modernization and technological advance. Productivity in coal mining can be greatly increased and the efficiency of utilization of coal can be greatly improved through these means. And, in the case of nuclear and solar energy, India has a vital interest in the development of new technology which would bring the large potential within the range of economic utilization.

Of course, modernization and technological advance are only one element of a comprehensive frame-work of policies on natural resources which must include, in addition, conservation, control over pollution

and preservation of the natural environment. These elements have begun to receive considerable attention in recent years in the developed countries in which serious problems of depletion of natural resources, pollution and deterioration of the environment have arisen. These problems exist in varying degrees in India also and these elements must be important constituents of the policies on natural resources; references have been made earlier in this chapter to the needs for conservation and control over pollution. But if any aspect of these policies has to be singled out as being the most important at the present stage of India's economic development, it is unquestionably rapid modernization of production techniques.

TABLE I

Yields of Rice and Wheat—Developed and Under-developed Countries
(Kg. per hectare)

A. Paddy Rice (Average 1966-68)		Wheat (Average 1966-68)	
Developed countries			
Italy	46.4	United Kingdom	38.5
U.S.A.	49.6	U.S.A.	18.1
Japan	55.3	France	33.8
U.S.S.R.	31.7	U.S.S.R.	13.3
Under-developed countries			
India	14.9	India	9.5
Burma	15.8	Pakistan	8.9
Thailand	16.8	Turkey	12.0
Brazil	15.0	Argentina	11.4
U.A.R.	49.8	U.A.R.	25.8

TABLE II

India—Trends in Yields of Selected Crops
(Kg. per hectare)

	1955-56	1961-62	1967-69 (*Average*)
Rice (Cleaned) ..	874	1,028	1,054
Wheat	708	823	1,137
Cotton	88	103	123
Jute	1,082	1,248	1,210
Sugar-cane (*Gur*) ..	3,289	4,303	4,834

TABLE III

Contribution of Agricultural and Mineral Products to Exports and Imports in 1968-69 and Projections for 1973-74 and 1980-81

(Value figures in Rs. million)

	1968-69		1973-74		1980-81	
	Value	*Per cent*	*Value*	*Per cent*	*Value*	*Per cent*
A. **Exports**: Total	13,600	100.0	19,000	100.0	30.200	100.0
1. Agricultural and allied products:	4,500	33.1	6,050	31.8	9,580	31.7
Tea	1,560	11.5	1,700	8.9	1,900	6.3
Marine products	230	1.7	480	2.5	1,160	3.8
2. Minerals:	1,320	9.7	2.030	6.8	3,160	10.5
Iron ore	880	5.9	1,550	8.2	2,520	8.3
3 Manufactures	7,040	51.8	10,100	53.2	16,390	54.3
B. **Imports**: Total	19,040	100.0	22,000	100.0	29,500	100.0
1. Foodgrains	3,370	17.7	300	1.4	—	—
2. Metals including metalliferous ores and scrap	1,810	9.5	3,550	16.1	4,500	15.3
3. Crude oil and petroleum products	1,330	7.0	1,800	8.2	3,300	11.2
4. Fertilizers and raw materials	1,850	9.7	3,100	14.1	4,300	14.6

TABLE IV

Areas Covered by Surveys

1. **Topographic survey**	
(By Survey of India upto 1960)	
Area surveyed on 1" : 1 mile or larger scales	2,294,214 sq. km.
Area surveyed on smaller scales	668,688 ,, ,,
2. **Cadastral survey**	
Surveyed areas:	
(a) With reporting agency which maintains land records and also reports agricultural statistics	223.97 million hectares
(b) With no reporting agency maintaining records but for which statistics are reported by the States	23.52 ,, ,,

Unsurveyed areas:	
(c) With no reporting agency but for which statistics are reported by the States	43.68 million hectares
(d) With no reporting agency and no statistics	35.22 ,, ,,
3. **Soil surveys** (upto 1961)	
(a) Surveys in areas of irrigation projects	9.77 ,, ,,
(b) Detailed or reconnaissance surveys by the Soil and Land Use Survey	6.07 ,, ,,
(c) Surveys by State Governments	10.28 ,, ,,
4. **Forest surveys** (upto 1957)	
Total area under forests	783,962 sq. km.
Surveyed	353,711 ,, ,,
Unsurveyed	430,251 ,, ,,
5. **Geological survey** (upto 1961)	
Area surveyed on scale of 1" : 1 mile	1,135,520 sq. km.
Area surveyed on smaller scales	4,30,743 ,, ,,

TABLE V

India — Classification of Total Area by Topography and Annual Rainfall

I. **Topography**		
Per cent of total land area classified as:		
	Plain	43.05
	Plateau	27.67
	Hill	18.53
	Mountain	10.74
	Topographically usable area*	62.08
II. **Annual Rainfall**		
Per cent of gross sown area in zone of average annual rainfall:		
Assured	Above 1,875 mm.	11.1
	1,250 mm. -- 1,875 mm.	22.3
Medium	750 mm. — 1,250 mm.	33.8
Low	375 mm. — 750 mm.	25.0
	250 mm. — 375 mm.	5.6
	Below 250 mm.	2.0

*Topographically usable area has been calculated as follows:

Plain	95%
Plateau	75%
Hill	25%
Mountain	5%

TABLE VI

India — Classification of Area by Broad Soil Classes

Approx. area in million hectares

1.	Alluvial soil	101.21
2.	Alluvial soil, highly calcareous	8.91
3.	Coastal alluvium	8.50
4.	Deltaic alluvium (occasionally saline)	17.00
5.	Alluvial soil, affected by salinity and alkalinity	6.88
6.	Desert soil	14.57
7.	Deep black soil	6.88
8.	Medium black soil	18.62
9.	Shallow black soil	4.86
10.	Black soil affected by salinity and alkalinity	6.88
11	Black soil undifferentiated	12.55
12.	Mixed red and black soil	10.52
13.	Red soil	30.36
14.	Red gravelly soil	1.62
15.	Red and yellow soil	17.81
16.	Laterite	10.12
17.	Laterite and lateritic soil	2.02
18.	Brown soil under deciduous	1 62
19.	Gray and brown soil	3.64
20.	Hill soil	2.43
21.	Podsolic soil	3.64
22.	Forest soil laterised	6.48
23.	Foot hill/*Terai* hill	5.67
24.	Mountain Meadow soil	11.74
25.	Mountainous soil undifferentiated	6.48
26.	Skeletal soil	2.43
27	Peat muck, very humose and humose soil, also called bog soils, organic soils and half bog soils	0 24
28.	Glaciers and eternal snow	4.05
	Total :	326.15

Note: Figures, given in acres in the original, have been converted into hectares.

TABLE VII

India — Land Utilization and Irrigation 1950-51 to 1966-67

(000 Hectares)

		1950-51	1960-61	1966-67
1.	Geographical area	326,809	326,809	326,809
2.	Reporting area	284,315	298,458	305,610
3.	Forest	40,482	54,032	62,335
4.	Not available for cultivation	47,517	50,751	48,293
	4a. Land put to non-agricultural uses	9,358	14,840	15,534
	4b. Barren and unculturable land	38,159	35,911	32,759
5.	Permanent pastures and grazing lands	6,675	13,966	14,085
6.	Land under miscellaneous tree crops and groves (Not included in net area sown)	19,828	4,459	4,110
7.	Culturable waste	22,943	19,212	17,101
8	Fallow land: 8a. Other than current	17,445	11,180	9,357
	8b. Current	10,679	11,639	13,282
Cultivation and Irrigation:				
9.	Net area sown	118,746	133,199	137,047
10.	Area sown more than once	13,147	19,573	19,520
11.	Gross cropped area	131,893	152,772	156,567
12.	Net irrigated area	20,853	24,661	27,478
13.	Gross irrigated area	22,563	27,980	32,754

TABLE VIII

Growth rates of Agricultural Areas, Production and Productivity —Trends and Projections, 1949-50 to 1980-81

	Gross cropped Area	*Productivity*	*Production*	*Gross Irrigated Area*	*Area sown more than once*
	per cent		per year		
1949-50 to 1968-69	1.4	1.5	2.9	2.4*	2.6*
First Plan 1951-52 to 1955-56	2.6	1.4	4.1	2.6	6.7
Second Plan 1956-57 to 1960-61	1.3	1.8	3.1	1.8	1.5
Third Plan 1961-62 to 1964-65	0.6	2.7	3.3	2.2	1.9
1969-70 to 1980-81 (Projection)	1.2	3.7	5.0	4.2**	4.6**

*1950-51 to 1966-67

**Calculated from figures given in Table 9.

TABLE IX

Agricultural Areas, 1950-51 to 1966-67 and Projection for 1980-81

(million hectares)

	1950-51	1955-56	1960-61	1964-65	1966-67	1980-81 (Projection)
1. Total reporting area	284.3	291.9	298.5	305.3	305.6	n.a.
2. Net sown area	118.7	129.2	133.2	138.1	137.0	151
3. Area sown more than once	13.1	18.2	19.6	21.1	19.6	37
4. Gross cropped area (Lines 2 + 3)	131.9	147.3	152.8	159.2	156.6	188
5. Gross irrigated area	22.6	25.6	28.0	30.7	32.8	58
6. Cropping intensity (Lines 4/2) per cent	111.2	114.1	114.7	115.3	114.3	124.5
7. Irrigation percentage (Lines 5/4)	17.1	17.4	18.3	19.3	20.9	30.9

TABLE X

Arable Land in Selected Countries

	Arable land/ Geographical area (Per cent)	*Arable land per capita (hectares)*
World	10.5	0.42
U.S.A.	18.8	0.87
Canada	4.4	2.06
Brazil	3.5	0.33
United Kingdom	30.2	0.13
France	36.2	0.38
India	50.1	0.30
Japan	15.4	0.06
Sudan	2.8	0.47

TABLE XI

Irrigation Potential of Major and Medium Projects

		Irrigation potential (million hectares)
Zone 1.	West-flowing rivers (covering river basins in Kerala, Mysore and Maharashtra states and the basins of Tapti, Narmada and others)	4.05
Zone 2:	East-flowing rivers (covering the basins of Tambraparani, Vaigai, Cauveri, Mahanadi, Godavari, Krishna, Pennar and others)	13.35
Zone 3:	Indus basin	5.26
Zone 4:	Ganga basin (covering Chambal, Yamuna, Ramganga, Tons, Gomti, Sone, Ganga and its tributaries)	16.60
Zone 5:	Brahmaputra basin	1.21
	Total:	40.47

TABLE XII

Per Capita Consumption of Energy in Selected Countries in 1969

(Kilograms of coal equivalent)

World	..	..	..	1,804
U.S.A.	..	..	..	10,774
Canada	..	..	..	8,794
U.K.	..	..	..	5,139
W. Germany	..	..	..	4,850
France	..	..	..	3,518
Italy	..	..	..	2,431
Yugoslavia	..	..	..	1,243
U.S.S.R.	..	..	..	4,199
Japan	..	..	..	2,828
India	..	..	..	193
Burma	..	..	..	58
Ceylon	..	..	..	118
Taiwan	..	..	..	874

TABLE XIII

India—Energy Consumption in 1960-61 and Projection for 1980-81

(By primary sources, expressed in terms of million tonnes of coal replacement)

	Consumption in 1960-61				*Projection for* 1980-81*			
Energy source	*Quantity*		*Per cent*		*Quantity*		*Per cent*	
Coal	49.9		20.6		208.9		27.8	
Oil	39.1		16.2		279.9		37.2	
Hydro power	6.8		2.8		38.4		5.2	
Nuclear	—		—		15.4		2.0	
Total commercial sources		95.8		39.6		543.1		72.2
Cow-dung	21.6		8.9		25.0		3.3	
Fire-wood	95.3		39.4		125.0		16.6	
Vegetable waste	29.2		12.1		59.0		7.8	
Total non-commercial sources		146.1		60.4		209.0		27.8
Grand total		241.9		100.0		752.1		100.0

*Intermediate projection, assumes annual growth rate of 6 per cent for national product and 8.5 per cent for industrial output.

TABLE XIV

Regional Distribution of Potential and Development of Hydel Power, and Demand for Electricity

Region	*Potential**		*Development*	*Demand for electricity*
	Million twh.	*Per cent*	*Per cent of potential developed by 1960-61*	*Per cent of All-India demand*
Eastern	14.2	6.5	5.6	26.4
Northern	36.6	16.9	2.8	9.6
Central	43.9	20.3	1.1	15.5
Western	13.6	6.3	10.0	21.5
Southern	42.6	19.7	9.7	26.1
Assam	65.5	30.3	0.08	0.9
All India	216.4	100.0	3.6	100.0

*The hydel power potential is estimated in aggregate at 41 million kw. at 60% load factor, which corresponds to 216.4 million twh. annual output on a firm basis.

TABLE XV

India — Estimated Reserves of Selected Minerals

Mineral	*Unit*	*Quantity*	*Mineral*	*Unit*	*Quantity*
Coal	million tonnes	123,000	Bauxite (aluminium ore)	million tonnes	260
Petroleum	"	100-175	Mica	"	n.a.
Manganese ore	"	180	Asbestos	"	0.58
Iron ore	"	21,870	Gypsum	"	1,117
Chromite	"	2.3	Limestone	"	15,740
Vanadium ore	"	26.7	Magnesite	"	100
Ilmenite (Titanium ore)	"	350	Sulphur (element)	"	neg.
Copper ore	"	32.9	Pyrites (40 per cent)	"	384
Lead ore	")	10.7	Phosphatic nodules	"	2.0
Zinc	")		Apatite	"	0.87
Tin	"	neg.			

TABLE XVI

Classification of Forest Area by Type, Ownership, Legal Status and Economic Value — 1964-65

		Area (in sq. kilometres)
1.	Total forest area	752,982
2.	*Type:*	
	Coniferous	46,144
	Broad-leaved: *Sal*	97,818
	Teak	91,222
	Miscellaneous	517,798
3.	*Ownership:*	
	Forest Department	696,582
	Civil authorities	16,084
	Corporate bodies	24,573
	Private individuals	15,743
4.	*Legal status:*	
	Reserved	327,181
	Protected	226,027
	Unclassed	179,412
5.	*Economic value:*	
	Merchantable	590,064
	Unprofitable or inaccessible	162,918

CHAPTER III

DEVELOPMENT OF WATER AND POWER RESOURCES

A. WATER RESOURCES

I. Assessment of Resources

The Indian sub-continent ranging from the lofty Himalayas in the north, through the Indo-Ganga plains, the Rajputana (Rajasthan) desert, and the central plateau to the large peninsula in the south has varied topography and climate. The major part of the country has an average monsoon rainfall of over 100 cm. with the north-eastern and south-western regions receiving over 400 cm. in a normal year. This rainfall as well as the melting of the snows in the Himalayas give rise to a number of river systems which have been sustaining civilizations since pre-historic times. The Indus Valley civilization, the Aryan civilization on the banks of the holy Ganga, and numerous lesser known civilizations in the southern peninsula, all flourished on the water resources made available by the various rivers that flow in several directions in the country. The long coastline with the vast Indian Ocean also gave rise to many a civilization which established trade and cultural contacts with other countries extending from the Mediterranean Sea to the Pacific Ocean. Thus utilization of the natural water resources for the benefit of mankind in this part of the world is not new. But its systematic development, which keeps in view the present requirement, the future needs for the ever-increasing population as well as the equitable distribution of the natural wealth of the country can be said to have begun only with the dawn of independence in 1947.

Rainfall Pattern: Due to the movement of the sun to the northern hemisphere in the summer, seasonal winds, called the south-west monsoon, which are moisture-laden, originate from the huge Indian Ocean in the southern hemisphere, cross the equator and enter the Indian sub-continent from the south-west. Soon afterwards the monsoon bifurcates the Arabian Sea branch and the Bay of Bengal branch, the latter moving into parts of Assam in the month of May. Kerala, on the sea-side of the Western Ghats, receives the south-west monsoon between the last week of May and the first week of June. With the progress of the summer, the monsoon winds from the Bay of Bengal move northward and are stopped and deflected to the west by the Himalayas and this results in the whole country excluding the western parts of Rajasthan coming under the influence of the mon-

soon by the first week of July. However, the advance of the monsoon is not regular every year and is governed by the movement of depressions and low pressure waves travelling from the Bay of Bengal across the country. Moreover, precipitation in other areas is determined by the orographic features. While Assam, the western coastal plains and the Western Ghats receive heavy rainfall in all years, other parts of the country have to take chances on the number of depressions that occur in the Bay of Bengal during the monsoon months. Therefore, the annual monsoon rainfall variation in the central, northern and north-western parts of the country is much more pronounced than in the regions of abundant rainfall.

The monsoon starts withdrawing from the Punjab downward upto Saurashtra in Gujarat in the first week of September and disappears by the middle of November except in the extreme south and south-east where the receding monsoon gives rains as the north-east monsoon from the Bay of Bengal.

During the winter, the northern parts of the country get some rainfall from western disturbances but these are irregular and not reliable compared to the south-west monsoon. Severe cyclonic storms experienced during the transition months of April to June and October to December also cause heavy precipitation.

Topography and River Systems: The great rivers, Indus, Ganga and Brahmaputra together with their tributaries have their source in the glaciers of the Himalayas and are perennial as they are fed by the melting of snow in late winter and summer and are also rain-fed during the monsoon. The other river systems in the central and southern parts of the country are rain-fed and since the monsoon is limited to approximately 4 months *viz.* June to September, they have very low flows in the pre-monsoon months of March, April and May and even tend to dry up during this period.

The Himalayas may be regarded as a double mountain wall descending into a series of deep valleys towards the north from which the Indus, the Sutlej and the Brahmaputra rivers gather their waters while the southern slopes drain into the mighty Ganga system which forms one of the largest plains in the world extending over 1,500 km. The Indo-Ganga plain lies between the Himalayas in the north and the plateau of the peninsula in the south. This extends from India's boundary in the west to the Bay of Bengal in the east. The Brahmaputra and its tributaries drain the heavy rain-fed regions of Assam. In the Rajputana desert, which occupies a major part of the State of Rajasthan, rainfall is very scanty and till recently this area was thinly populated. The central plateau with the southern peninsula is almost triangular in shape and includes the whole of the country south of the Vindhya range, as far as

Kanyakumari. The plateau slopes up from the southern edge of the Ganga plains with the Vindhya hills ranging from about 500 metres to 1,700 metres in height and stretching from east to west for a length of about 1,300 km. Rivers from this central region flow in all directions contributing to the Ganga in the north, Narmada and Tapti in the west, Damodar and Mahanadi in the east and the tributaries of the Godavari in the south.

Leaving a narrow belt on the west coast, the Western Ghats with an average height of 1,000 metres run from north to south in almost a continuous stretch, dotted by a number of peaks reaching upto 2,400 metres in height. The Eastern Ghats on the eastern side of the plateau are neither as high nor as continuous as the Western Ghats. The average height of the Eastern Ghats is 450 metres and they recede inland as they stretch southwards and leave broad flat tracts of land between the hills and the sea. On the eastern coastal plains the deltas formed by the rivers Godavari, Krishna, Cauvery and other smaller rivers are fairly extensive in area and are fertile and suitable for intensive cultivation. The rivers draining the west coast are short in length, but swift due to the steep slope. The rivers on the east coast, however, are longer, but being in the rainshadow region their flow is meagre and inadequate to meet the needs of the region.

Regions: The average rainfall over the Indian sub-continent is about 110 cm. as a whole, and this rainfall over the country's land area of 328 million hectares gives a total precipitation of about 373 million hectare metres. Although this is an enormous quantity, much of it is lost in evaporation in this hot country and less than half of it appears as run-off. The mean daily evaporation in the country varies from about 2 mm. in the winter months in wet areas to as much as 16 mm. in the summer months in dry areas with the annual average for the whole country at about 6 mm. Therefore, the total run-off in the various river basins which includes the flood flows in the monsoon, dry weather flows from sub-soil storage and groundwater recharge is estimated at only about 167 million hectare metres.

For the purpose of assessment of the available water resources, the country has been divided into six regions as indicated below:

1. Indus Basin: This region in the north-west corner of India draining the western and northern slopes of the Himalayas has an area of 35.4 million ha. with average rainfall of 56 cm. The States of Jammu and Kashmir, Punjab, Haryana and Himachal Pradesh are located in this region.

2. Ganga System: This large basin of nearly 100 million ha. with

an average rainfall of 111 cm. extends from the southern slopes of the Himalayas in the north to the northern slopes of the Vindhyas in the south and is spread over the States of Uttar Pradesh, Bihar and parts of Madhya Pradesh, Rajasthan and West Bengal.

3. **Brahmaputra System:** The mighty Brahmaputra system rising from the northern slopes of the Himalayas debouches into India at the north-east corner of Assam and is further fed by its various tributaries rising from the heavy rainfall regions of Assam, Nagaland, Meghalaya and the adjoining territory of Bhutan. The area of this region is 51 million hectares and it has an average rainfall of over 120 cm.

4. **Rajasthan (Rajputana) :** This forms part of the State of same name and is practically waterless. The total area is 17 million hectares with an average rainfall of 29 cm.

5. **West Coast:** The west coast draining into the Arabian Sea, excluding the Indus system, is also a region of high rainfall and parts of the States of Gujarat, Maharashtra, Mysore and Kerala form this region. The total area of this region is 49 million hectares and the average rainfall is 122 cm.

6. **East Coast:** Basins of rivers falling into the Bay of Bengal other than the Ganga and the Brahmaputra systems form this region which covers a wide area of over 120 million hectares and has a large population. Some areas in the interior are frequently affected by drought. Parts of Madhya Pradesh, Bihar, Maharashtra, Karnataka (Mysore) and the States of Orissa, Andhra Pradesh and Tamil Nadu form this region which has an average rainfall of 109 cm.

From the above description of the monsoon and the topography of the country it may be observed that India gets moderate rainfall which, however, covers almost the whole of the country. But the average rainfall is neither assured nor its distribution favourable for the crops every year. A few regions such as the west coast and Assam get consistently good rainfall; in other regions, although the average appears adequate, the variations in different years are considerable and, therefore, not suitable for dependable cultivation. The run-off records of the various river systems in India are incomplete and an assessment of the water resources from actual gauge-discharge records is therefore not possible for the whole country; but rainfall records are available for a long period and attempts have been made to forecast the run-off from the rainfall to assess the water resources for the whole country.

The Central Water and Power Commission had worked out the surface water resources of different regions during the period

1954-66. This study was based largely on a statistical analysis of the flow data wherever it was available and on suitable rainfall run-off relationships, wherever observed data was meagre. According to this study, in the year 1960 the water resources of the various basins amounted to 1,881,057 m. cu. m. (1,524 million acre feet) as detailed below.

TABLE I

Surface Water Potential

	River Basin	*Water Potential (Million Acre Ft.)*	*Remarks*
	(1)	(2)	(3)
	Zone No: 1 — West Flowing Rivers		
1.	River basins of Kerala	30.03	
2.	River basins of Madras and Bombay below Tapti	146.62	
3.	Tapti basin	16.00	
4.	Narmada basin	32.50	
5	Basin above Narmada	22.50	
	Total:	247.65	
	Zone No: II — East Flowing Rivers		
6.	Tambraparni and Vaigai river basins	7.08	
7.	Cauvery basin	15.08	
8.	Mahanadi and other basins between Ganga and Godavari	106.52	
9.	Godavari basin	93.52	
10.	Krishna basin	46.83	
11.	Pennar	5.56	
12.	Basins between Cauvery and Pennar	13.70	
	Total:	288.29	
	Zone No: III — Indus Basin		
13	Indus basin	64.43	Figures as estimated by Khosla's formula.
	Zone No: IV — Ganga Basin		
14.	Chambal river basin	19.71	
15	Yamuna river basin	53.20	
16.	Ram Ganga basin	15 10	
17.	Tons river basin	5.09	
18.	Gomti basin	5.86	
19.	Sone and other basins between Tons and Sone	40.65	
20.	Gogra	92.65	
21.	Right bank tributaries below Sone	36.60	
22.	Left bank tributaries below Gogra	141.60	
23.	Main Ganga	34.50	
	Total:	444.96	
	Zone No: V		
24.	Brahmaputra and Barak basin	478.90	
	Grand total for Zones I, II, III, IV & V	1,524.23	

Groundwater Resources: A scientific assessment of the groundwater potential of the country was not undertaken until a few years ago. Wells used to be constructed, and are even now being constructed, on the basis of local expertise and on the advice of water diviners. The construction of tube-wells in the Ganga alluvium of Uttar Pradesh was taken up in the thirties but this was based on local knowledge and not on any assessment of the groundwater potential. Groundwater mapping and groundwater exploration were, until recently, sporadic and limited to specific areas.

It was not until 1936 that a large-scale programme for the construction of tube-wells was undertaken in the Ganga alluvium of Uttar Pradesh when 1,500 tube-wells were constructed and channels laid to irrigate 3,367,000 hectares.

Estimate of Available Resources: Although groundwater has been located at a number of places, no systematic quantitative assessment has so far been made. Such an assessment can be made only on the basis of complete data on sub-surface geology, rainfall, evapotranspiration, run-off, percolation zone and extent of saturation, hydraulic gradient, aquiferous characteristics, geo-chemistry of water, etc. The collection, compilation and analysis of such data will naturally take time. The regime of groundwater in various regions has also to be systematically studied over a number of years.

The occurrence of groundwater, according to a recent assessment, is indicated in Table II.

Utilizable Water Resources: So far, no systematic study or analysis of the utilizable water resources of the country has been done except for the Indus river system. The Irrigation Commission (1969-72) has made some preliminary assessments and has indicated in its report that the entire water resources of the Godavari, Krishna, Narmada and Tapti rivers can be utilized. The waters of the Cauvery have already been practically fully utilized.

As regards the Ganga, which carries about 493,400 m.cu.m. (400 M.A.F.) of water on an average, the Commission assessed that it should be possible to utilize about 185,000 m.cu.m. (150 M.A.F.) for the development of irrigation. In view of the topography and the limited opportunities for storage, the rest of its waters will continue to flow into the Bay of Bengal, particularly during the monsoon season.

There is very little possibility of utilizing the Brahmaputra waters except through a few medium and lift irrigation schemes in Assam. Nearly 370,000 m. cu.m. (300 M.A.F.) of the Brahmaputra waters will continue to flow annually into the Bay of Bengal.

The west flowing rivers of India (excluding the Tapti and Narmada)

TABLE II

Groundwater Resources (In Million Acre Feet)

State	*Amount of contribution of rainfall to groundwater recharge*	*Possible recharge due to canal infiltration*	*Total*	*Evapotranspiration and sub-surface run-off losses %*	*Net groundwater recharge*	*Annual draft by the end of 1967-68*	*Net ground water recharge available for further groundwater development*	*Area irrigated by groundwater at present (million acres)*
1	2	3	4	5	6	7	8	9
Andhra Pradesh	20.0	4.6	24.6	30	17.2	3.57	13.6	1.4
Assam Region (Including Nagaland, NEFA, etc.)	40.7	1 2	41.9	60	16.7	0.003	16.7	—
Bihar	26.9	4.4	31.3	30	21.9	2.35	19.5	1.2
Delhi	0.5	—	0.5	30	0.3	n.a.	—	—
Gujarat	14.1	0.4	14.5	30	10.2	4.13	6.1	1.75
Haryana	3 0	1.6	4.6	25	3.5	0.75	2.7	0.75
Himachal Pradesh	2.3	—	2.3	60	0.9	n.a.	—	0.003
J & K	9.6	0.4	10 0	60	4.0	0.001	4.03	0.03
Kerala	9.5	1.2	10.7	50	5.4	0.004	5.4	0.016
Madhya Pradesh	43.1	1.4	44.5	40	26.7	4.22	22.5	1.00
Tamil Nadu & Pondicherry	12.9	3.5	16.4	30	11.5	3.47	8.0	2.30
Maharashtra	19.8	1.2	21.0	40	12.6	3.4	9.2	2.00
Karnataka	14.8	1.8	16.6	40	10.0	1.03	9.0	0.75
Punjab	5.1	4.0	9.1	25	6.9	3.3	3.6	3.5
Orissa	19.4	3.4	22.8	30	16.0	0.15	15.8	0.20
Rajasthan	4.0	1.8	5.8	40	3.4	2.07	1.4	3.00
Uttar Pradesh	34.5	10.0	44.5	20	35.5	17.92	17.6	9.00
West Bengal	19.6	3.4	23.0	30	16.1	0.36	15.7	0.10
Total	299.8	44.3	344.1	—	218.8	46.73	170.80	27.00

*n.a. — not available.

are another important and significant source of water. These rivers carry on an average nearly 246,700 m.cu.m. (200 MAF) of water. However, on account of the very short distances traversed by them in their flow to the coast and the nature of the terrain, the possibilities of utilizing these waters for irrigation are very limited. It is, however, possible to divert eastward a limited quantity of water from these rivers for irrigation. Nearly 197,400 m.cu.m. (160 MAF) however will still continue to flow into the Arabian Sea.

The Mahanadi, and other east flowing rivers have a sizable water potential though only partial utilization would be possible on account of the limited land potential and storage possibilities. About 74,000 m.cu.m. (60 MAF) of water from these rivers would still flow into the Bay of Bengal.

The utilizable water resources of the country, as assessed by the Irrigation Commission, can be broadly summed up as shown below:

TABLE III

1.	Narmada, Tapti, Godavari, Krishna, Cauvery, and other southern rivers	246,700 m.cu.m. (200 MAF)
2.	The Indus System	49,300 m.cu.m. (40 MAF)
3.	The Ganga System	185,000 m.cu.m. (150 MAF)
4.	The Brahmaputra System	12,300 m.cu.m. (10 MAF)
5.	The Mahanadi and other east flowing rivers	123,400 m.cu.m. (100 MAF)
6.	The west flowing rivers excluding the Tapti and Narmada	49,300 m.cu.m. (40 MAF)
	Total:	666,000 m.cu.m. (540 MAF)

II. Development of Irrigation

India lies partly in the tropics and partly in the sub-tropical region. The general climate of the country is warm, and therefore, the temperature conditions would permit two or more crops over most of the country. However. since rainfall is concentrated over just 4 monsoon months, without irrigation cultivation is not possible for more than one crop. In regions where the annual rainfall is 100 cm. or less, agricultural production is mainly dependent on the favourable distribution of the monsoon rains. In a majority of the years, even if the average rainfall does not depart much from the normal, the distribution may be erratic and unreliable. In many years only a cash crop is possible. Even in regions with high rainfall, excess rainfall gives rise to floods and inundation of the sown areas, and this, coupled with long periods of break in the monsoons, results in a poor yield in a number of years.

Irrigation has been practised in India from pre-historic times and ancient Indian literature refers to wells, tanks, canals etc., which are

said to have been maintained efficiently with the State taking the responsibility of their maintenance and operation. The entire landscape in central and southern India is studded with numerous irrigation tanks, some of which have been constructed centuries before the Christian era. There are a number of small canals in the upper valleys of the rivers of northern India which are equally old.

Among the important ancient irrigation systems still in use is the old stone weir (Kallanai) which is reported to have been constructed by the ancient Tamil King Karikala Chola in A.D. 46 across the Cauvery, at the head of its delta. With the system of river channels and canals from the headworks, a large area of nearly 0.4 million hectares (1 million acres) is being irrigated for centuries. In the British period, the irrigation works constructed during the 19th century were the Western Yamuna Canal, Bari Doab Canal, Godavari delta system, Krishna delta system, Cauvery delta system, Agra Canal, Betwa Canal, Periyar canal system, Kharakvasla Storage Dam, Godavari Canal, Sarda Canal, Ganga Canal, Sone canal system, etc. Early in the 20th century, subsequent to the report of the First Irrigation Commission, some more projects such as the Krishna Raja Sagar, Mettur Reservoir, Nizam Sagar and a few others were taken up. These irrigation projects were in addition to the number of smaller irrigation works taken up all over the country to irrigate small areas. Thus, at the time of independence the total gross irrigated area that remained in India after partition was 22.6 million hectares. The details of important irrigation works in use at the time of independence are given in the following table:

TABLE IV

Sl. No.	*Name of Project*	*Year of Completion*	*Gross area irrigated '000 ha.*	*Total cost of Project in Rs. million*
	1	2	3	4
	Andhra Pradesh			
1.	Krishna Delta system	1898	494	82.5
2.	Kurnool-Cuddapah canal system	1870	60	29.5
3.	Godavari Delta system	1890	508	31.4
4.	Nizam Sagar	1930	76	40.4
5.	Kanigiri Reservoir	1906	38	3.5
6.	Pennar river system	1894	69	7.2
	Bihar			
7.	Tribeni Canal	1914	48	8.2
8.	Sone Canal	1879	275	26.8
	Haryana			
9.	Western Yamuna Canal including extension scheme	1892	547	76.6
	Jammu and Kashmir			
10.	Ranbir Canal	1904	48	5.0

	(1)	(2)	(3)	(4)
	Madhya Pradesh			
11.	Sarathi Reservoir and Wain Ganga Canal	1923	29	5.1
12.	Tandula	1921	65	10.6
13.	Murramsilli Reservoir Mahanadi Canal	1923	88	15.7
14.	Kharung	1931	38	6.6
15.	Maniari	1933	32	6.2
16.	Harsi and Katepo Dam	1934	25	1.7
17.	Bhind canal system	1927	32	11.6
	Maharashtra			
18.	Asola Mendha Tank	1918	10	1.8
19.	Ramtek Tank	1906	11	2.9
20.	Ekruk Tank	1871	25	1.4
21.	Darna Dam and Nandu Madhaweshwar Weir	1916	24	7.6
22.	Wilson Dam and Ozat Weir Parvara River Works	1938	30	12.5
23.	Bhatgar (Lloyd) Dam and Nira Right Bank Canal	1938	39	60.2
24.	Satpal Tank and Nira Left Bank Canal	1906	33	11.7
25.	Mhaswad Tank	1897	10	2.1
	Karnatak (Mysore)			
26.	Krishnarajasagar and Visveswaryayya Canal	1930	40	45.0
	Orissa			
27.	Orissa canal system	1895	100	27.7
28.	Busselkonda Dam and Hinjila Anicut system	1901	45	5.6
	Punjab			
29.	Upper Bari Doab Canal	1879	368	25.4
30.	Sirhind Canal	1887	1,031	27.5
31.	Eastern Canal	1933	108	25.5
32.	Ghaggar Canal	1899	30	1.2
	Rajasthan			
33.	Gang Canal	1928	294	32.1
	Tamil Nadu			
34.	Cauvery delta system	1889	425	10.3
35.	Srivaicuntam Anicut	1889	17	1.8
36.	Shatiatope Anicut	1895	21	1.2
37.	Cheyyar Anicut	1896	12	1.1
38.	Periyar canal system	1897	59	10.8
39.	Lower Coleroon Anicut	1903	54	3.4
40.	Cauvery-Mettur Project	1934	104	66.4
41.	Kattalai	1926	38	4.3
42.	Palar	1896	39	2.6
43.	Kodayar	1906	23	16.1
	Uttar Pradesh			
44.	Upper Ganga Canal from Bhimgoda	1854	695	53.8
45.	Lower Ganga Canal	1878	592	47.5
46.	Sarda Canal	1926	593	195 5
47.	Agra Canal from Okhla	1873	159	21.9
48.	Eastern Yamuna Canal	1854	191	12.9
49.	Doon Canal	1863	12	4.9
50.	Paricha Dam and Betwa Canal	1886	120	96.7
51.	Dhasan Canal	1910	36	4.0
52.	Ghaggar canal system	1917	60	17.8
53.	Ghaggar Pumped Canal	1938	17	13.1
54.	Rohilkhand Canal	1894	21	4.2
55.	Ken Canal (Gangau Weir)	1915	96	16.9
56.	Rampur	N.A.	21	1.2
	West Bengal			
57.	Damodar Canal	1935	90 (Net)	13.3
58.	Midnapur Canal	1889	40(Net)	8.5
59.	Eden Canal	1881	16	2.7

In the early forties, just before independence undivided India was one of the larger irrigated countries of the world. With partition nearly one third of the irrigated area of the country went to Pakistan. On account of the economic slump of the thirties, followed by the Second World War, further development of irrigation had also been slowed down, but the population had meanwhile increased fast. Since India was facing a severe food shortage soon after independence in 1947, greater attention was paid to irrigation to increase agricultural production in the Plans that were formulated since the fifties.

There was urgent necessity to increase agricultural production which could be best achieved only by extending irrigation facilities rapidly. Luckily, a large number of new projects had already been investigated as part of the post-war construction plans. Some of these were immediately taken in hand. Tungabhadra (1945), Hirakud (1948), DVC Project (1948), Malampuzha (1950), Chambal (1953), Lower Bhawani (1947), Manimuthar (1950), Bhadra (1947), Bhakra-Nangal (1945), Matatila (1950) and Mayurakshi (1946) are important irrigation and multi-purpose projects taken up during this early plan period. Most of these projects have by now been completed and full benefits achieved.

During the Plan period which commenced in 1950-51, regular procedures have been laid down for the implementation of the Plan targets. According to the practice thus established, no scheme can be taken up by the States until approval for the scheme is given by the Planning Commission, Government of India. The Central loan assistance given for these projects is also subject to this condition. The system in vogue classified all projects costing more than Rs. 50 million each as major. Irrigation schemes costing individually upto Rs. 1 million were originally classified as minor schemes. This limit was raised to Rs. 1.5 million in 1965 and to Rs. 2.5 million in 1970 (for schemes in hilly regions, this limit is Rs. 3 million). The other schemes costing between Rs. 2.5 million and Rs. 50 millon are called medium schemes. For technical scrutiny of the major and medium schemes the Planning Commission is assisted by the Central Water and Power Commission in the Union Ministry of Irrigation and Power. The minor schemes are processed through the minor irrigation wing of the Union Ministry of Agriculture. In this manner, the criteria to be fulfilled for the inclusion of new projects in the Plan are ensured, and this procedure enables the Union Government to influence the pattern of development according to the national interest.

At the beginning of the First Five Year Plan, total irrigated area from all sources was 22.6 million hectares. The actual water utilization by these irrigated areas was about 9.5 million hectares of surface water. It has also been estimated that 22 million hectare metres of ground-

water can be exploited for irrigation purpose, to serve 22 million hectares, of which only 6.5 million hectares was developed at the beginning of the First Plan. The hydro-power potential of the country is estimated at 41.2 million kw. against which the installed capacity in 1951 stood at 0.56 million kw. Inland river water transport was restricted to certain parts of Assam, West Bengal and Bihar. Flood control was confined to a few embankments constructed on certain rivers.

The Planning Commission recognized that the foremost requirement in rebuilding the agricultural economy of the country was by large-scale development of irrigation and power. In this manner, the way for rapid industrialization of the country would also be paved. A target of doubling the area under irrigation in 20 years was set to be achieved by 1974. Rapid expansion of power generation was also aimed for increasing the low per capita generation of 21 kwh. in 1951; this has increased to 120 kwh. in 1972.

By the end of March 1969, India completed three Five Year Plans and three Annual Plans. During the three Five Year Plans and subsequent Annual Plans, 533 major and medium irrigation projects were taken up including 76 major projects. During the Fourth Five Plan since April 1969, 13 major and 33 medium schemes have been sanctioned so far. By the end of March 1972, 361 schemes (22 major and 339 medium) have been completed. The ultimate irrigation potential from major and medium projects has been estimated at 56.5 million ha. The irrigation potential of the major and medium irrigation projects so far undertaken has been estimated at 20.2 million ha. of which a potential of 10.7 million ha. was created by 1972-73 leaving a balance of 9.5 million hectares for development through the continuing schemes. This, together with 9.7 million hectares (23.9 million acres) of irrigation available from pre-Plan projects provides a total of 20.4 million hecteares of irrigation potential from major and medium schemes.

Thirty-four important irrigation projects taken up since independence, each costing more than Rs. 200 million are listed in Table V. Of these projects, Nagarjunasagar, Tungabhadra H.L.C. Stage-I, Kosi Eastern Canal, Gandak, Ukai, Mahi Stage-I, Parambikulam Aliyar, Mula, Tungabhadra, Bhadra, Ghataprabha Stage-II, Hirakud, Mahanadi Delta, Ramganga, Mayurakshi and Kangsabati are programmed to be fully or substantially completed by the end of the Fourth Plan in 1973-74. Bhakra-Nangal and Damodar Valley Corporation projects have already been completed.

Minor irrigation schemes that were undertaken between 1951 and 1969, like tanks, wells, tube-wells, and lift irrigation and protection works provided new irrigation facilities to 6.12 million hectares of agricultural land at the end of 1968-69, and this added to the pre-plan minor irrigation of 12.88 million hectares (32 million acres) gave a total irrigation

TABLE V

Sl. No.	*Name of Project*	*Estimated cost in Rs. Million*	*Ultimate benefits in million hectares*
1	2	3	4
	A. Continuing Projects		
1.	Nagarjunasagar	2,500.00	0.83
2.	Pochampad	757.20	0.27
3.	Tungabhadra High level Canal Stage - I	181.60	0.05
4.	Kosi Project Eastern Kosi Canal	746.00	0.43
5.	Gandak Project	1,800.00 } 390.30 }	1.15 } 0.31 }
		2,190.30	1.46
6.	Ukai (Irrigation and Power)	1,146.0 Irr. portion 932.3	0.16
7.	Narmada	1,097.0*	**
8.	Mahi Stage — I	245.7	0.19
9	Mahi Stage — II (Kadana)	240.0	0.02 +0.07
10.	Kallada	450.0	0.11
11.	Chambal Stage — I	476.7	0.28@ (For Stage I and II)
12.	Tawa Project	480.0	0.33
13.	Parambikulam Aliyar	500.7	0.10
14.	Bhima	622.9	0.17
15.	Mula	216.4	0.07
16.	Warna	569.5	0.10
17.	Krishna	497.8	0.11
18.	Jayakwadi Stage — I	743.6	0.14
19.	Tungabhadra Project	514.5 } 135.1 }	0.30 } 0.06 }
		649.6	0.36
20.	Bhadra Reservoir	406.5	0.10
21.	Ghataprabha Stage — II	485.3	0.05
22.	Malaprabha	676.5	0.21
23.	Kabini Reservoir	350.0	0.05
24.	Upper Krishna Stage — I	1,166.7	0.41
25.	Hirakud Stage — I	678.2	0.28
26.	Mahanadi Delta	683.8	0.68
27.	Beas Project Unit II (Beas Dam at Pong)	1,475.7	0.42
28.	Rajasthan Canal	2,081.2	1.27
29.	Ramganga	967.9	0.57
30.	Improvement to Lower Sarda Canal System Stage — I	648.4	0.62
31.	Mayurakshi Reservoir	204.6	0.25
32	Kangsabati Reservoir	459.3	0.38
	B. Completed Projects		
1.	Bhakra Nangal	805.9	1.23
2.	Damodar Valley Corporation	508.5	0.38

*Rs. 1,097.0 million is the cost debitable to irrigation based on Khosla Committee Report.
**Scope not yet finalised.
@Practically completed.

TABLE VI

Development of Irrigation in India (1951-72)

Expenditures during each Plan Period (Rs. Million)

	I Plan	*II Plan*	*III Plan*	*Annual Plans* 1966-69	*IV Plan* (1969-74) *outlay*	1969-72	*Total* 1951-72
I Major and Medium Irrigation	3,797.5	3,800.0	5,760.0	4,364.3	10,919.2	6,348.4	24,252.2
II Minor Irrigation	656.2	1,732.8	4,391.1	5,469.2	11,657.0	5,454.3	17,703.6
Total	4,453.7	5,532.8	10,151.1	9,833.5	22,576.2	11,802.7	41,955.8

Benefits (Irrigation potential in million hectares) to the end of each period.

	Pre-Plan	*I Plan*	*II Plan*	*III Plan*	1966-69	1969-72	1973-74 (target)
I Major and Medium Irrigation	9.67	12.15	14.30	16.53	18.08	19.53	22.02
II Minor Irrigation	12.88	14.05	14.78	17.00	19.00	20.73	22.19
Total	22.55	26.20	29.08	33.53	37.08	40.26	44.21

of 19.00 million hectares by March 1969. The total area under minor irrigation by March 1972, came to about 20.7 million hectares.

Thus, irrigation from all sources in India has increased from 22.55 million ha. in 1951 to 40.26 million in 1972, i.e., after 21 years of planned development of water resources for agricultural purposes. It is expected to reach 44.21 million hectares by March 1974. Table VI gives the progress in expenditure as well as benefits since 1951.

The spectacular progress in extending irrigation facilities has yielded remarkable results in additional agricultural production. The assured supply of water at the required period was the catalyst to farmers to use high yielding varieties of foodgrains and also fertilizers thereby increasing production.

Hydro-Power: The section on "Development of Power Resources" includes a detailed resume of the growth of hydro-power in India as well as future prospects. Here, the progress achieved after independence has been set out briefly. In the field of hydro-power generation the major projects commissioned during 21 years of planning are Bhakra-Nangal, Hirakud, Chambal, Rihand, Tungabhadra, Sharavathy, Kundah, Parambikulam Aliyar, Koyna, Sabarigiri, Machkund, Upper Sileru, Umiam and Bassi. These projects have increased the installed capacity or generation of hydel power by more than ten times since 1951. The installed capacity of hydro units in 1950-51 was 0.36 million kw. and this has increased to 6.61 million kw. in 1971-72. It is expected to go up to 7.5 million kw. by 1973-74. The Table below gives the plan-wise progress.

TABLE VII

Growth of Installed Capacity

Million kw.

Year	*Hydro Plants*	*Total*
1950—51	0.56	2.30
1955—56	0.94	3.42
1960—61	1.92	5.65
1965—66	4.09	10.17
1968—69	5.01	14.29
1971—72	6.61	17.00
1973—74	7.50	20.10

The important hydro power stations which have given benefits since the beginning of the Plan period are listed below.

TABLE VIII

Hydro Power Stations and Installed Capacity

Sl. No.	*Name of Project*	*Installed Capacity (MW)*
1.	Moyar	3 x 12
2.	Sengulam	4 x 12
3.	Machkund I	3 x 17
4.	Ganguwal I	2 x 24
5.	Ganga Sarda System in U.P.	87
6.	Extension of Pykara	2 x 13.6
7.	Extension of Jog	4 x 18
8.	Yamuna I	84
9.	Machkund II	2 x 21
10.	Maithon	3 x 20
11.	Panchet Hill	1 x 40
12.	Porlingalkuthu	4 x 8
13.	Periyar	4 x 35
14.	Gandhisagar	5 x 23
15.	Tungabhadra	8 x 9
16.	Umiam	6 x 9
17.	Penniar	2 x 15
18.	Neriamangalam	3 x 15
19.	Hirakud I	123
20.	Kundah I, II and III	425
21.	Mettur Tunnel	4 x 50
22.	Mettur Dam	4 x 19
23.	Koyna Stage I	4 x 60
24.	Koyna Stage II	4 x 75
25.	Sharavathi I and II	8 x 89
26.	Bhadra	33
27.	Hirakud II	147
28.	Bhakra Left Bank	5 x 90
29.	Ganguwal II	1 x 29
30.	Kotla I and II	2 x 77
31.	Rihand	6 x 50
32.	Bhakra Right Bank	5 x 120
33.	Matatilla	3 x 10
34.	U.B.D.C.	15
35.	Chinani	14
36.	Obra Hydel	3 x 33
37.	Sholayar	54
38.	Sabarigiri	6 x 50
39.	Kodayar	100
40.	Kosi	10
41.	Jaldhaka	18
42.	Rana Pratap Sagar	4 x 43
43.	Bassi	3 x 15
44.	Upper Sileru	2 x 60
45.	Parambikulam Aliyar	185

This increase in generation capacity has made it possible to extend electricity to the villages also. The task of supplying power to nearly 600,000 villages spread out over the different corners of the country is indeed stupendous. Since independence, the boon of electricity has

been made available to over 130,000 villages holding a sure promise of prosperity to rural India. This also enables exploitation of water resources available near the farms by installing pump sets. By 1972, over 2 million pump sets were working with power.

Future Programme: Although India has made rapid strides in the development of its water and land potential for increasing agricultural production, the present levels of availability of food and standard of living in India are far below that of most nations of the world.

The achievements in the field of irrigation, though impressive indeed do not yet go far enough to meet the country's requirements. The total cropped area is at present about 163 million ha. but irrigation potential is available only to about one-fourth of this area. Foodgrains production currently is around 110 million tonnes, which needs to be increased to about 160 million tonnes to provide at least a quarter tonne per head by 1981. To achieve this objective the area under irrigation will need to be increased at least by another 50 per cent. The increase will have to be in major and medium irrigation as well in minor irrigation, which calls for an increase of 1 million ha. in the area under irrigation every year on an average in each sector.

In the field of hydro power development the preliminary programme for the period 1971 to 1981 has been worked out so as to increase the installed capacity from 6.61 million kw. to 22.0 million kw. This will help increase the total installed capacity of power from 17 million kw. in 1971 to 52 million kw. in 1981.

III. Flood Control

Achievements: While the problem of floods is as old as the rivers themselves, no extensive efforts were made scientifically to tackle it till the country achieved independence in 1947. The earlier efforts were mainly restricted to construction of embankments piecemeal, mainly erected by individual zamindars to protect their own lands from inundation. At the beginning of this century, when irrigation projects were taken up, some embankments were built to protect the irrigated lands from the ravages of floods. After independence, it was realized that these efforts were inadequate and therefore, multipurpose reservoirs like the Hirakud and the Damodar Valley complexes were taken up for flood control and multi-purpose use of the stored waters. However, till 1954, no major countrywise programme of flood control was undertaken.

The year 1954 brought one of the worst devastating floods in the country which spurred the Government to concerted action. The Government of India, launched a National Programme of Flood Control

in that year. The main handicap, at its outset, was the lack of topographical and hydrological data to plan and implement the flood control schemes. The first priority was, therefore, given to collection of data, apart from undertaking immediate measures wherever necessary. This was subsequently followed by taking up properly planned schemes to control floods and to check river erosion. Floods have still continued to damage our economy, at an annual rate of Rs. 196 crores during 1953-1971. The maximum damage occurred during 1971 was estimated at Rs. 632 crores. Flood damage in 1972 was estimated at Rs. 149 crores.

Policy and Future Programmes: Under the Indian Constitution, flood control is a State subject. Investigation, planning, construction and maintenance of flood control, anti-erosion and drainage schemes are entirely the responsibilities of State Governments. In order to give this programme a national perspective, the Government of India announced in 1954, a national programme of flood control as mentioned earlier. To implement this programme effectively, various organizations at the State, Inter-state and Central levels have been set up. The Centre had also to take up another important role, that of helping the States to plan the schemes of Inter-state rivers to ensure that there are no adverse effects from schemes constructed in one State on another State. Upto the beginning of the Fourth Plan, specific allotments of funds were made for the flood control schemes in consultation with the States, depending on the nature and magnitude of the problem in each State and the priority of the schemes. From the beginning of the Fourth Plan, this system has been changed and the States are given various development programmes. The State Governments have, therefore, to earmark the financial outlays for various sectors of development, including flood control.

It is now proposed to accelerate the flood protection works to ensure that, at the end of the decade 1971-1981, at least 80 per cent of the areas in each State which are prone to floods are given protection. It is hoped that by the end of 1981, a total area of 10 million hectares may be provided flood protection in the country. This corresponds to about 66 per cent of the area that can be economically protected from floods. This programme besides benefitting new areas will also stabilize the benefits already achieved in some areas by raising and strengthening the existing embankments wherever necessary, and by enlarging capacities of drains to higher run-off factors. It is also proposed to take up construction of some storage works during this period. It is estimated that such a programme will require an outlay of Rs. 5,000 to Rs. 6,000 million. The various State Governments have been requested to investigate and prepare schemes and work out priorities for their implementation to achieve the targets.

In the national flood control programme, which was outlined in 1954, it was envisaged that the construction of embankments will essentially be a short-term measure. As a long-term measure, it was proposed to construct storage reservoirs on a number of major and minor rivers to control the floods passing lower down. Some storage projects had already been built with flood control in view, notable among which are the Hirakud dam on the Mahanadi in Orissa, and a series of 4 dams on the Damodar river system for the States of West Bengal and Bihar. In addition, a number of multi-purpose river projects have been constructed in the country which, although not providing specific flood storage, help considerably in moderating the flood flows. In the coming decade, more reservoir projects have been envisaged to provide permanent storage protection from the flood ravages. Such reservoirs, wherever feasible, are proposed to be planned for multi-purpose uses like irrigation and hydro-electric generation to make them economically viable.

In order to implement the national flood control programme outlined by the Government of India in 1954, a network of organizations has been set up at various levels.

At the State level, State Technical Advisory Committees and Flood Control Boards have been set up to examine the technical and economic feasibility of the schemes, to lay down policies for the formulation of these schemes, and to prepare long range plans for flood control. The planning and implementation of the schemes is being done by the irrigation departments in various States. There are no separate departments for flood control so far. However, recently in order to tackle the complex problems of flood control and erosion in a more scientific manner in the Brahmaputra Valley in Assam and in the north Bengal region of West Bengal, separate Flood Control Commissions have been set up. Two separate Boards of Consultants comprising experts in this field assist these Flood Control Commissions. To lay down policies and give direction to these Commissions, the Brahamputra Flood Control Board and the North Bengal Flood Control Board have been set up with the Union Minister of Irrigation and Power as Chairman.

At the Inter-state level, four river commissions have been set up *viz.*, the Ganga, the Brahmaputra, the North-west and the Central India Rivers Commissions. These are presided over by the Chairman, Central Water and Power Commission with the Chief Engineers of the States in the region as members, apart from the representatives of the Survey of India, Geological Survey of India, Ministries of Railways and Transport and the India Meteorological Department. These Commissions are entrusted with the work of coordinating the plans of various States in the river basins and solving Inter-state disputes.

In order to prepare and implement a comprehensive integrated plan

of flood control, erosion and drainage in the Ganga Basin as a whole, with the close co-operation of the Government of India, a separate flood control commission has been set up. The Government of India have also constituted the Ganga Flood Control Board headed by the Union Minister of Irrigation and Power and consisting of the Union Minister of State for Finance and the Chief Ministers representing the States of Bihar, Uttar Pradesh, West Bengal, Haryana, Rajasthan and Madhya Pradesh as members.

At the Central level, there is the Central Flood Control Board. This is presided over by the Union Minister of Irrigation and Power and has the Union Ministers of Railways, Transport and Agriculture as well as the representatives of the State Flood Control Boards as members. This Board lays down broad policies for the programme, reviews the progress achieved in the various activities of flood control and gives an overall direction for the implementation of the programme.

In order to assist the Central Flood Control Board, the Union Ministry of Irrigation and Power and the Planning Commission, a separate flood control wing has been created in the Central Water and Power Commission. This organization carries out the technical scrutiny of various flood control, drainage, anti-waterlogging and anti-sea erosion schemes and also assists the State Governments in planning and implementing of the flood control programme. It also provides expert assistance on specific problems referred to it. Since 1969, this organization has also undertaken the work of flood forecasting on major rivers in six States, *viz.*, Assam, Bihar, Uttar Pradesh, Orissa, West Bengal and Gujarat, in addition to the forecasting on the river Yamuna in Delhi which has been taken up from 1959. This has helped State authorities to take timely action, both for the safety of the engineering works as well as the arranging of timely evacuation and relief measures.

Flood warning and flood fighting are the responsibilities of the State Governments. In these fields, varying practices are being adopted by different States. In order to make them uniform and effective, the Central Water and Power Commission has recently circulated a manual of flood operation, indicating the frame work of organization for flood warning, flood fighting, etc.

During the last 18 years, about 40 per cent of the area which can be economically protected has been afforded protection, with an investment of Rs. 2,552 million. The average annual outlay works out to only 11 per cent of the average annual damage caused by floods. In order to set up the programmes and to achieve the objective of minimizing the damage, a decade plan has been proposed to provide protection by 1981 to at least 50 per cent of the area liable to floods.

While the various known methods of flood control have already been adopted the major emphasis so far has been on the construction of embankments. This is now proposed to be supplemented with the construction of storage reservoirs, wherever feasible. In order to tackle the programme on a concerted basis, separate organizations exclusively devoted to flood control have been set up, as mentioned earlier, in the States of Assam and West Bengal as well as for the Ganga Basin as a whole covering six States. It is proposed to extend the flood forecasting systems in the country to reduce the loss of life and property by giving timely warnings. Setting up of organizations to effectively carry out flood warning and flood fighting is also proposed.

While the progress achieved so far is significant in the context of the overall magnitude of the problem as well as its ramifications, it is equally necessary to accelerate the programme and set up new organizations so that the recurring damage is minimised as early as possible. This is particularly important since, with the increase in the pressure of the population and the rapid progress of industrialization in the country, flood control would be vitally necessary to prevent set-backs to socio-economic growth.

IV. Future Perspective

About one-third of the area of our country is subjected to drought. The current percentage of irrigation attained in the drought districts is low as compared to the average of the country as a whole. Moreover, most of the irrigation is through minor schemes, which usually are unable to provide adequate quantities of water and very often fail during critical periods. Even after taking into consideration the increase in the irrigated area by utilizing the balance of the available local waters, the percentage in most cases is still on the low side. In order to improve this proportion to a reasonable level, it will be necessary to consider schemes for importing water from outside the basin. There is an imbalance in the distribution of available water resources in the various regions of the country in relation to the areas of water demand and in relation to the time and need during the year. The northern and eastern rivers fed by high rainfall during the monsoon carry abundant discharges. The snows of the Himalayas help in keeping these rivers perennial although the discharge during the dry season is a small fraction of that in the rainy months. The western and southern rivers on the other hand, being purely rain-fed, have very uncertain flows because of the vagaries of the rainfall and the annual yield of these rivers is also highly variable. These conditions of high discharges available for only the short rainy period point to the obvious need for conserving the flows in the high flow period for utilization in the lean months. Many large storage tanks have

already been constructed and several more are in various stages of construction and planning. Even after harnessing the utilizable water resources, many rivers like the Ganga, Brahmaputra, Mahanadi, etc. will carry large volumes of water to go waste into the seas. A country with so many drought prone regions can ill-afford to waste all these surplus waters and it is essential that these are put to use for meeting the needs of the deficient areas.

In order to achieve these objectives, it has been proposed to inter-link the various major rivers, thus enabling transfer of surplus flows to areas of deficit supply. This will remedy, to some extent, the imbalance of the regional water resources. The geographic relation between regions of water supply and water demand will be such that the overall picture will comprise two main groups of water transfer links; one extending from the east to the west and the other extending from the north to the south-west and the south. Subsidiary links, branches and connectors with intra-basin and local projects and other services will also be necessary. When identified, these features will constitute a National Water Grid, investigations for which are proposed to be taken in hand shortly. The major part of this grid would be the ambitious programme of linking the Ganga in the north to the Cauvery in the south probably by the turn of this century.

B. POWER RESOURCES

I. Historical Background

Power Policy: Under the Constitution of the India, electricity is a concurrent subject, with responsibility both of the Centre and the States. It is a field in which private entrepreneurship accounted for most of the earliest developments, whereas today State undertakings predominate. Electricity development in the country started at about the turn of the 20th century. From timely, impressive beginnings, and after an unduly prolonged period of halting growth, progress has been accelerated during the last twenty years of planned development. The total installed generating capacity in the country in March 1970 stood at 15.5 million kw. to which State-owned public utilities contributed 12.5 million kw. (80%), private utilities operating under licences 1.6 million kw. (10%), the rest of about 1.4 million kw. (10%) being in the non-utility sector, i.e., State-owned as well as licensed private industries, which generate electric power for their own consumption. Prior to independence, out of a total installed capacity of 1.7 million kw. in the entire country, State-owned utilities contributed only 0.37 million kw. (21.8%), which is indicative of the subsequent change in the role of the Government in this field.

Early Legislation: From the earliest stages, the power to legislate

in the field of electricity development was vested in the Central Government. Legislation to control electricity supply actually preceded the setting up of the electrical utility industry. The first legislative measure was introduced as the Electricity Act of the Government of India in 1887, at a time when electrical installations covered only a few dynamos feeding arc lights and electric candles. The primary object of this bill was to enable the Governor-General in Council to frame rules for protecting the public, person and property from injury from appliances or apparatus utilized in the supply of electricity for lighting and preventing telegraph lines from being injuriously affected by these appliances. The question of control of electricity supply undertakings by means of licences was considered but action was deferred. The Act was regarded as a preliminary measure to be reviewed as soon as some experience in the field had been gained.

In 1891, when proposals were received from the Indian Electricity Supply Syndicate for the establishment of works for supply of electric lighting to the city of Calcutta, the Government of Bengal represened to the Centre that further legislation was called for, either (a) by a general Act applicable to the whole of India or, (b) by a local and special Act for Calcutta, to enable it to issue licences for electric supply, and to exercise control on other related matters such as protection of the interests of the electric supply undertakings and of consumers from excessive charges. The second alternative was recommended by the Central Government and this led to the enactment of a local Act in Bengal, *viz.*, the Calcutta Electric Lighting Act of 1895, applicable to Calcutta and providing for its extension to other municipalities in Bengal. The question of amending the Act of 1887 to provide for control of electric undertakings by means of licences. was again considered by the Government of India in 1895 but it was felt that the more important Provincial Governments, with Legislative Councils of their own, could pass Acts similar to the Calcutta Act whenever required and, in the other minor administrations, no urgency was felt.

In 1900, the Government of Bengal, faced with the need for a modification and extension of the Bengal Act of 1895, suggested that it would be desirable for the Central Government to frame a comprehensive Act applicable to the entire country. It was also represented from other parts of India that promoters of electric enterprises would welcome such legislation. The Provincial Governments were also generally in favour of a general Act. In this context, the Electric Supply Act of 1903, which repealed the Act of 1887 and the Calcutta Electric Lighting Act of 1895, was passed. This Act specifically provided for control by licence, of undertakings supplying electricity to the public, for purposes of traction etc. and also for making rules and reference of disputes for arbitration. It

was, however, recognized that even this Act was a tentative measure requiring amending legislation at an early date.

In the early years of power development, the electricity supply industry was organized predominantly by private enterprise for serving the needs of populations in large towns and cities. Soon many difficulties were encountered in the working of the 1903 Act. While the power to issue licences under this Act rested with the Provincial Government, yet authority or previous sanction of the Governor-General in Council in regard to certain matters was required. This resulted in dual administration and almost every application for a licence had to be referred to the Governor-General in Council resulting in inordinate delays. These being detrimental to promotion of electricity development, a committee of amendment to review the various provisions of the 1903 Act was appointed in 1907, and its deliberations led to the repeal of the 1903 Act, and passing of the Indian Electricity Act of 1910.

The Electricity Act 1910: General administration of this Act, and the granting of licences, subject to the control of the Governor-General in Council. were left in the hands of the Provincial Governments, only the rule making powers being reserved to the Governor-General in Council. The Act provided for the issue of licences for establishment of electric utility undertakings, laid down the responsibilities and duties of the licencees, ensured that adequate safety measures were taken by the utilities and consumers in the distribution and use of electricity, and incorporated generally all the regulations and controls necessary for the smooth running of the industry. It was primarily regulatory in character and concerned itself a great deal with essential provisions of safety. The main purpose of the Act was not so much to promote the development of the power supply industry as to exercise adequate control in the public interest. In 1922, the control of the Governor-General in Council in granting of licences was also abolished in accordance with the spirit of the Montague-Chelmsford Reforms. The Government of India Act of 1935 assigned the subject of elctricity, to the concurrent list, and this resulted in the responsibility of the Central Legislature being confined only to introducing legislation in the field, while the complete administration of the legislative measures vested with the Provincial Governments. The 1910 Act has been modified from time to time in the light of subsequent experience and to suit the changed political situation in the country after independence.

Beginning of Electricity Supply Industry: Electricity was first introduced in the country in the year 1897, when a 130 kw. hydro-electric project, utilizing the unregulated waters of a Himalayan hill stream, was launched by the Darjeeling Municipality in Bengal under a licence.

The first steam-driven power plant, rated 1,000 kw., was installed at Calcutta two years later in 1899 by the Calcutta Electric Supply Corporation. The first major hydro-electric installation was the 4,500 kw. Sivasamudram Station on the Cauvery river, launched in 1902 by the Mysore Durbar to supply power to the Kolar Gold Mines. The capacity of the Station was progressively increased from 4,500 kw. in 1902 to 15,700 kw. in 1920. Sivasamudram was not only the first major power scheme in India designed to promote industrial development but had the distinction of having, associated with it, one of the longest -- 145 kms. at 70 kilovolts — transmission lines in the world at that time. In 1909, the Kashmir Durbar inaugurated its Jhelum Power Station (installed capacity 4,000 kw.) at Mohora. Several thermal installations sprang up in 1906, notably in Madras, Kanpur and Delhi.

The most impressive scheme of power development in the period after the enactment of the Act of 1910, and prior to the First World War, was the 50,000 kw. hydro-electric scheme implemented by the Tatas at Khopoli in 1914 under which waters of an east flowing tributary of the Krishna river, were harnessed ingeniously by impounding and westward trans-basin diversion of these waters across the continental divide, to utilize a fall of 500 meters, available in the neighbouring basin. The capacity of the thermal stations in the various cities was increased, and small installations mushroomed at the more important towns. Electricity tariffs were high and development of electric supply on the whole was not progressive.

Impact of World War I: The outbreak of World War I brought matters to a head, when it was found that power was one of the most basic requirements of all war-time demands. The Indian Industrial Commission, while reviewing the power position during 1916-18, emphasized the need for a survey of the hydro-electric resources of India, since the entire industrial future depended upon the provision of cheap power. It further recommended that the survey be carried out forthwith by Government, since only they could estimate the effect of displacing communities under reservoir schemes, ascertain long-term rights, adjust conflicting claims, initiate and carry through joint and inter-dependent power and irrigation schemes, and most important, afford to conduct the long-term gauging operations which were so essential for hydro-electric projects. The Commission also pointed out that unless a systematic survey was undertaken by Government, it would not be possible to formulate precise rules for grant of concessions.

Acting on these recommendations, a survey of the hydro-electric resources of the entire country was initiated in 1919 under the auspices of the Central Government and was conducted on a country-wide basis for a short period of three years. This represented the first evi-

dence of Government's direct interest in the field of electricity development, either at the Centre or in the Provinces, and led to a preliminary assessment of the water power resources of India, which, for the territories now forming part of the Indian Union was placed at 3.5 million kw. continuous, on firm basis. Although unduly pessimistic and severely inhibited by the limitations of technology at that time, this survey represented a valuable first step undertaken at a timely stage. Unfortunately, in 1920 the Government of India, as a consequence of the Montague-Chelmsford Reforms, decided that all outlay on water storage and water power would be a provincial charge and ruled that the necessary provision for hydro-electric surveys should be made in the provincial estimates from the year 1921-22 onwards. This marked the end of direct participation by the Central Government in the field of power development till World War II. Although some Provincial Governments evinced interest in a few selected schemes, the aims and objects of a nation-wide survey of total resources were soon lost sight of.

The period after 1921 was, however, important because some enterprising Provincial Governments *viz.*, Madras, U. P. and the Punjab entered the field of power development with pioneering hydro-electric projects, *viz.*, Pykara, Papanasam and Mettur in Madras, the chain of power stations utilizing the falls along the Ganga Canals in U.P. and Jogindernagar in the Punjab. Grid systems emerged as power was carried from these hydro stations to remote load centres. The Princely States of Mysore and Jammu and Kashmir expanded their hydro stations and the State of Travancore also joined in the development of hydro power. The Tatas, the great industrial *entrepreneurs*, expanded their hydel stations along the Western Ghats. Expansion of thermal stations continued on load centre basis, as a preserve of private enterprise, operating under licences for production and distribution of power in urban centres. In addition to expansion of the then existing thermal power stations at Calcutta, Madras and Kanpur, new installations were commissioned in Bombay, Lucknow, Allahabad, Delhi, Agra etc. The total power plant capacity in the entire country at the beginning of World War II was about 1.2 million kw. to which State-owned electric utilities contributed about 76% of the total.

During World War II, all the available power supply resources were strictly controlled and regulated from the point of view of the war effort. Expansion of the industry was stifled considerably during the war period and shortly thereafter. At the time of independence, the installed capacity stood at about 1.7 million kw.

The Electricity Supply Act of 1948: As pointed out earlier, the Indian Electricity Act of 1910, introduced during the infancy of the electricity supply industry, was not specifically aimed at promoting rapid

development. This inadequacy, pointed to the need for additional legislation and for promotion and rationalization of power development. With the rapid growth of electricity during the post-World War I years, the concept of co-ordinated operation of electricity stations by forming grid systems, and the advantages of centralizing direction and control of bulk supply of energy by a single authority were recognized as essential for fostering healthy and economic growth of electricity. These new concepts introduced by technological advancement in the field were considered in detail by the Power and Fuel Sub-Committee of the National Planning Commmittee set up in 1940 under the chairmanship of Jawaharlal Nehru. This Committee, in its resolution, recommended the creation of Central and Provincial Electricity Boards to implement national policies on power. Its also considered that it would be advantageous if Government were ultimately to own and operate the entire electricity supply industry. The Policy Committee on Electricity and Public Works of the Government of India also recommended in February 1945 that "Steps should be taken to eradicate any factors that retarded the healthy economic growth of electrical development on regional lines whether in the Provinces, States and Local Authority-owned or in commercially-owned electrical undertakings." It was then decided that the needs of the country would best be met by the constitution in the Provinces of quasi-autonomous statutory boards provided with adequate powers to effect the rationalization of electricity supply throughout the Province. Since it was not possible to legislate for this purpose within the framework of the 1910 Act, which had been conceived for an entirely different purpose, specific additional legislation on the broad lines of the Electricity (Supply) Act of 1926, in force in the U.K. at that time, was thought advisable. Accordingly, a bill was introduced in 1946 in the Central Legislative Assembly and its provisions discussed at a conference of prominent representatives of the Assembly as well as of industry and Provincial Governments in the summer of 1947. The bill finally drawn up was referred to a Select Committee of the Central Assembly in December 1947. The revised bill incorporating various amendments and modifications was introduced in the Constituent Assembly (Legislative) in 1948, and passed as The Electricity (Supply) Act, 1948. This Act provides for the establishment of a Central Electricity Authority and for organizations in the States, known as "State Electricity Boards." It also lays down principles for the control of finance of public electricity supply utilities.

The Central Electricity Authority, provided for in the 1948 Act, and constituted in January 1950, is statutarily empowered to:

(a) develop a sound, adequate and uniform national power policy and particularly to co-ordinate the activities of planning agencies

in relation to the control and utilizaton of national power resources,

(b) act as arbitrator in matters arising between the State Government or Boards and a licensee or other person as provided in the Act,

(c) carry out investigations and collect and record data concerning the generation, distribution and utilization of power and the development of power resources, and

(d) make public from time to time information secured under this Act and to provide for the publication of reports and investigations.

Some of the functions of the Central Electricity Authority, like collection and publication of statistics pertaining to the electricity supply industry, etc., are discharged for and on behalf of the Authority, by the Power Wing of the Central Water and Power Commission, the technical organization of the Union Ministry of Irrigation and Power. The latter organization was formed by amalgamation of the Central Electricity Commission (1948 to 1952) with the Central Water Power, Irrigation and Navigation Commission in 1953.

The State Electricity Boards provided for in the 1948 Act are semi-autonomous bodies empowered to control and regulate power development in the areas under their jurisdiction with the following specific functions:

(a) to rationalize the production and supply of electricity in any area by preparing and carrying out schemes in which provision may be made for all or any of the following matters, *viz.*,

(i) the establishment of the Board's own generating stations;

(ii) the designation with the consent of the owner of generating stations, whether existing or new, as controlled stations at which electricity shall be generated for the purpose of the Board;

(iii) the inter-connection, by means of main transmission lines to be constructed or acquired by the Board, of any generating station with any others and with any system of licensees;

(iv) where a scheme relates to a specified area, the inter-connection of the system of the Board in that area, with the system of the Board in any other area with respect to which a scheme is being or may subsequently be made;

(v) the construction or acquisition with the consent of the owner of such other main transmission lines as the schemes may require;

(vi) the use by the Board of any transmission lines or main transmission lines of any licensee with his consent;

(vii) such supplemental, incidental and consequential provisions

as may appear necessary or expedient for any of the purposes aforesaid;

(b) to supply electricity to owners of controlled stations and to licensees whose stations are closed down under the Act, and

(c) to supply electricity as soon as practicable to any other licensees or persons requiring such supply and whom the Board may be competent under this Act to supply.

One of the important features of the Electricity (Supply) Act of 1948 is that it lays down the financial principles to regulate the commercial working of electric licensees. It introduces the concept of ensuring power supply — a basic need — at economical and reasonable rates, by the provision that the clear profits of a licensee shall not, as far as possible, exceed the amount of "reasonable return". If such a return is not, however, realized by a licensee, a procedure has been outlined by which the licensee could then extend his schedule of rates.

The Delhi State Electricity Board was the first to be formed in 1950, followed soon thereafter by the Madhya Pradesh Board. The Bombay State Electricity Board was formed in November 1954. There was considerable reluctance initially on the part of some States to form Electricity Boards. The question was discussed at a meeting in the Ministry of Irrigation and Power on February 16, 1955, at which it was decided that all the States should constitute the Boards as required under the Act. Thereafter, State Electricity Boards were constituted in the rest of the country. Although State Electricity Boards have since been set up in all States except Jammu and Kashmir, their historical background and experience have varied widely, as should have been expected in a large country like India, and their performance — in their main objective of fostering electricity development — is likewise diverse. While most Boards have comprehensive functions of power generation, transmission and distribution under their charge, in a few cases, investigations and construction of power generation schemes continue with the State Government Departments. In others, private utilities still continue to generate and distribute power in lucrative urban areas. The full objectives of constituting State Electricity Boards have, therefore, yet to be achieved.

Period of Planned Development: After 1950, the electric power industry, whose growth was slow and halting for nearly half a century, received great impetus. Major river valley developments taken up after independence for multi-purpose benefits, with power generation as one of the major aspects, contributed substantially to this boost. In the following era of planned development, and with emphasis on rapid industrialization, electricity supply became even more important. Power development has generally kept pace with these rapidly growing

demands and during the last twenty years, there has been a seven-fold increase in the installed capacity.

The basic approach of the Electricity (Supply) Act of 1948 was to promote electricity development, through tariffs which assured *only* a reasonable return on investment. *More recently, in view of the capital intensive nature of the power supply industry and paucity of financial* resources, *the view has been expressed and gaining ground that electri*city supply undertakings should earn reasonable surpluses also to provide resources for future development towards which end electricity tariffs and duties should be readjusted. A committee, mainly of State Ministers, was set up to examine these and related issues in June 1964. Their report submitted in October 1964, points out that the general financial conditions of most Boards, not being satisfactory, an overall objective of achieving a net return of 3% on the capital base may be aimed at in two successive stages. The question of amending the Electricity (Supply) Act of 1948, to bring it in line with recent thinking is currently under active consideration of Government.

With the institution (in 1950) of the Planning Commission — whose role in overall planning of all national activities, impinges on those of the Central Electricity Authority — the *de facto* position is that the responsibility for planning and co-ordinating developmental activities rests with the Planning Commission, and is mainly exercised through the Ministry of Irrigation and Power and its technical department, the Central Water and Power Commission. The question of strengthening the Central Electricity Authority is also currently under consideration of Government.

II. Role of Coal, Hydro, Oil and Gas and Nuclear Resources

Coal: Coal has played the most significant part in the development of industrially advanced nations from the earliest stages. Though oil and gas have recently been rapidly substituting coal, it still forms the main source of energy in the world today. In India, coal has always been the backbone of the commercial energy supply, its production increasing steadily from about 6 million tonnes at the turn of the century to about 35 million tonnes in 1950 and about 80 million tonnes in 1970. Thermal power stations in 1969-70 in utilities, with an aggregate installed capacity of about 7,200 MW consumed about 17 million tonnes or about 21% of the total coal production in the country. Their output of about 27,000 million kwh. corresponded to a little more than half the total electricity produced in the country that year, more or less in keeping with past trends. Reliability of supply, limited outlays, and relative flexibility of location have been the main advantages of thermal genera-

tion in the past. Great advances in technology have taken place in thermal power generation during the past 50 years, leading to lower installation costs and vastly improved efficiencies of energy conversion. Further improvements, including operation at super critical pressures and higher temperatures, development of very large sized generating units, rated at over one million kw. each are being perfected. Thus, although facing increasing competition from the rapidly growing field of nuclear power generation, electricity production through coal-fired thermal stations is expected to continue to play an important role in the production of electricity. In fact, there are compelling reasons, peculiar to the coal industry in India, which necessitate continued reliance to a substantial extent on this form of electricity production.

It is known that coal has been used both as a fuel and for reducing iron ore in India from ancient times. The earliest exploitation for commercial purposes dates back to 1774 when a private company was granted permission to raise and despatch coal from large areas at Sitarampur in the Raniganj field. The work was, however, abandoned soon, and thereafter no further prospecting was done till 1840, when with Government assistance, a mine was opened at Egra near Raniganj. In the early stages, development was slow mainly due to the lack of transport facilities, the only means of reaching the Calcutta market being navigation along the Damodar river during the monsoons. The expansion of the East India Railway during the mid 19th century, was followed by steady progress, the total coal production rising to about 6 million tonnes at the turn of the century, out of which Raniganj alone contributed 2.55 million tonnes. Several coal mines were also opened up in the erstwhile Central Provinces and Hyderabad State during the latter part of the 19th century. At the beginning of the First Plan in 1951, the annual coal production in the country was about 35 million tonnes entirely by private enterprise.

The need for rapid expansion in coal production to meet the demands of transport, industry and other sectors was recognized early and in order to accelerate the development of new coal mines and rationalize production, a corporation — The National Coal Development Corporation (NCDC) — was set up in the public sector in 1956. At the end of the First Plan, coal production stood at 40 million tonnes and this figure was further increased to 56 million tonnes at the end of the Second Plan, out of which 40 million tonnes was by the private sector and 16 million tonnes by the public sector. About 41 million tonnes (or 3/4 of the total) came from the Bengal-Bihar coal fields, and the balance from outlying coal fields — 6.2 million tonnes from those in Madhya Pradesh, 2.6 million tonnes from Andhra Pradesh, and the rest from small mines in Assam, Orissa, Maharashtra, Rajasthan and Jammu and Kashmir. Of the total production, about 4.7% came from deep underground mines

at depths over 305 meters about 74.5% from shallow underground mines, and the balance of 20.8% from open cast workings. Coking coal — entirely raised in Bengal-Bihar — accounted for 16.89 million tonnes or about 30% of the total. Despite raisings from outlying coal fields, the large deficits of the western and southern regions, had to be mainly met from Bengal-Bihar, with inevitable long hauls. The average ash content of all Indian coal raised in 1960-61 was about 25% and that of coking coal about 23%.

At the end of the Third Plan, the production was of the order of 70 million tonnes. The target for the Fourth Plan has been set at about 93.5 million tonnes.

India's coal reserves are yet to be intensively explored in their entirety. The Geological Survey of India is at present engaged in the task of a systematic assessment of these reserves through a committee on the assessment of coal resources appointed by the Coal Council of India. An estimate of about 106,000 million tonnes of proved, indicated and inferred reserves upto a depth of 609 meters in the case of most of the coal fields and 1,219 meters in the case of some of the collieries, specifically Raniganj and Jharia, has been indicated recently. The coal fields are mainly concentrated along a belt that runs from the eastern part of the Damodar Valley towards Central India, down to the Godavari Valley. In addition to these reserves of coal, there are reserves of lignite around 2,060 million tonnes, most of which are located at Neyveli in Tamil Nadu.

In view of the fact that the reserves of coking coal are limited and these as well as high grade non-coking coals are required with priority in the industry and transport sectors, thermal plants have to rely mainly on lower grade or slack coals available in ample measure. Further, the high ash content of all coals, requiring upgrading by washing as an essential prerequisite to industrial and other uses, introduced large quantities of by-product coals (middlings) from washeries which can be utilized in power stations. Because the ash itself is deeply interspersed in the coal and is not so readily separable, there are difficulties in reducing the ash content by washing. A major programme of washing coal is currently under implementation, with the object of supplying clean coal with an ash content of about 17% for coking purposes. The actual output of by-product coals, would depend upon the production of coking coalfor metallurgical purposes, which, in turn, depends upon the targets for development of the iron and steel and other allied industries. At the end of the Fourth Plan, it is expected that about 6 million tonnes of these by-product coals would be available for power generation and these are expected to be fully utilized by the thermal stations in the Eastern Region, which are being designed to utilize these by-product fuels. Including these, the total coal consumption of all

thermal stations by the end of the Fourth Plan is expected to be of the order of 30 million tonnes.

From inception and during the entire first half century of growth, coal-based thermal generation comprised small load-centre installations supplying urban requirements of power at Calcutta, Bombay, Madras, Kanpur and other cities and towns. The first station was commissioned at Calcutta in 1899 followed by Madras and Kanpur (1906) and Delhi (1908), etc. These developments were exclusively by private enterprises which were freely allowed to expand their stations. Actual development upto World War I, was, however, extremely slow, the pace increasing somewhat thereafter. The installed capacity just prior to World War II was 540,000 kw. distributed among some 50 stations all of which were established and operated by private licensees.

There was a further spurt in activity following the end of World War II, when thermal stations in the urban centres continued to expand. The first major step in the development of economic thermal power through advantageously located large-mine-mouth installations was taken when the Damodar Valley Corporation (DVC) inaugurated work on the installation of the Bokaro Thermal Station with 3 generating units of 50 MW each in 1948-49. The total installed capacity of thermal plants in the utility sector in the country was increased from 1,004,400 kw. in 1951, to 1,546,800 kw. in 1956 and 2,436,255 kw. at the end of the Second Plan. The most important stations to be commissioned during this period were Bokaro (225,000 kw.) and Durgapur (150,000 kw.) in the DVC area, Trombay (187,500 kw.) and Chola-Kalyan (96,000 kw.) in the Bombay area, and Korba (99,000 kw.) in the Madhya Pradesh area.

The total installed thermal capacity including those of self-generating industries in the country increased to 5,560 MW at the end of the Third Plan and is expected to increase to about 12,700 MW as per the target for the Fourth Plan. Most of the recent additions to plant capacity have been in the public sector, as would be seen from the Table below:

TABLE IX

Thermal Installed Capacity in kw.

		Private Utilities	*Public Utilities*	*Total Utilities*	*Private as %age of the total*
1.	Prior to 1st Plan (31.12.1950)	758,520	245,914	1,004,434	76
2.	At the end of 1st Plan (31.12.1955)	809,434	737,368	1,546,802	52
3.	At the end of 2nd Plan (31.3.1961)	992,836	1,443,419	2,436,255	41
4.	At the end of 3rd Plan (31.3.1966)	1,395,770	3,019,515	4,415,285	32
5.	At the end of 1969-70	1,302,500	5,893,890	7,196,390	18

There has been a decided shift in the location of thermal power stations from urban load centres to pitheads. Obra (550 MW), near Singrauli collieris, Patratu (620,000 kw.) near Karanpura coal fields, Chandrapura (660,000 kw.), Durgapur (575,000 kw.). Bandel (330,000 kw.) and Santaldih (240,000 kw.) near Raniganj, Talcher (250,000 kw.), Satpura (312,000 kw.) and Neyveli (600,000 kw.) near coal fields of the same names, and Ramagundam (100,000 kw.) and Kothagudam (460,000 kw.) near Singareni collieries and Koradi (480,000 kw.) near the Pench Valley collieries are sites, at or close to collieries/washeries where the bulk of recent expansions completed/contemplated have been concentrated. These large mine-mouth washery stations, have very extensive extra high voltage grids, necessarily associated with them, to cover their large areas of reticulation. Sizeable investments are involved in developing these sites, arranging for water supply etc., and these major power stations are now being implemented mainly by the various State Electricity Boards.

The trend towards more rational development would also be seen from the Table below indicating the progressive increase in the unit sizes, to drive the twin benefits of reduced costs and improved efficiencies:

TABLE X

Year	*Capacity of the biggest station in MW.*	*No. of stations above 200 MW capacity*	*No. of Units greater than 50 MW but less than 100 MW*	*No. of units greater than 100 MW (including 100 MW unit)*
1. 1950	121	—	1	—
2. 1960	225	1	10	—
3. 1970	600	14	43	11

The average gross efficiency of all thermal stations, which was only of the order of 16.3% in 1951 and 20.1% in 1961 has increased to 25.1% in 1969, steadily approaching the higher standards achieved in advanced countries where efficiency levels of the order of 40 to 43% have been reached.

The costs of thermal energy production depend on the cost of fuel and the load factors. They range in India from about 3 paise per kwh. at high load factor stations near the collieries to about 5 to 6 paise per kwh. at stations located about 966 km. from the collieries and operated around annual system load factors of about 60%.

An adverse feature of thermal development in the country so far has been the almost complete dependence on sources outside the country, both for the plant and equipment, and the engineering services required for designs and erection of plant. To minimize this to the extent possible, the Government has embarked on a programme of indigenous manufacture of equipment associated with thermal stations. Boilers are to be manufactured by both public and private sectors — the

Heavy Electricals at Tiruchirapalli in Tamil Nadu and A.C.C.—Vickers-Babcocks Ltd., at Durgapur. Steam turbogenerators will be manufactured by the Heavy Electricals at their Bhopal, Ramachandrapuram and Hardwar plants, where attempts are being made to standardize designs for overall economy in design, manufacture and operation. To undertake all the complex engineering works of design and erection, the various Central and State organizations are being strengthened and the growth of private consulting engineering organizations has also been encouraged. It is expected that, with these measures, the dependence on foreign sources for equipment and services would soon be eliminated.

Hydro: Hydel development gained momentum during the third and fourth decades of this century when State Governments undertook electricity development in the public sector. It has since steadily gained in importance with installed capacities varying from about 33-40% of the total electrical energy production since 1950. Their importance is due primarily to their fairly even distribution over the country, and relative economy. That they are inexhaustible perennial sources, and their low costs of production remain constant throughout the useful lives of these schemes, i.e. 100 years and more, are also vital factors. A compelling avantage is that they involve the least import component of all alternatives for electricity production, since the bulk of the investments are on civil works, e.g., dams, water conductor systems and power stations which are designed and constructed almost entirely indigenously. The total hydro energy generation in 1969-70 at 23,000 million kwh. represents utilization of only about 10.2% of the available resources. This is due partly to the fact that hydel developments involve relatively longer gestation periods — covering extensive periods of investigation and construction work at remote sites — and quite often solution of complex problems associated with riparian rights and inter-State aspects. Long-term perspective planning is expected to overcome these limitations and lead to a quicker pace of utilization of hydro resources.

Hydel generation was initiated in India in 1897 through a 130 kw. station for municipal town lighting in Darjeeling (West Bengal). In 1902, the Mysore Durbar set up the first major station at the famous Cauvery falls at Sivasamudram (4,500 kw., raised to 15,700 kw. by 1920), to supply power to the Kolar Gold Mines. It was also the first industry-oriented power scheme. In 1909, the Kashmir Durbar inaugurated its 4,000 kw. Jhelum Station at Mohora near Srinagar. Municipal stations for town lighting were installed at Mussoorie (450 kw.) in 1913. Among these early developments, the 50,000 kw. Khopoli Scheme pioneered by the Tatas in 1914 to meet the electricity demands of Bombay City, and which involved westward, trans-basin diversion of waters of the

tributaries of the Krishna river to utilise a fall of 500 meters, was easily the most impressive. At the beginning of World War I, the aggregate capacity of hydel installations in the country stood at 70,000 kw.

Shortly after World War I, the Tatas followed Khopoli with a similar 72,000 kw, Bhivpuri Station in 1920 and the 110,000 kw. Bhira Station in 1927, in the same area, to meet growing demands of the city. Mysore State increased the capacity of Sivasamudram to 42,000 kw. in stages and followed it up with the 17,200 kw, Shimsha Hydel Project nearby in 1940. During the late twenties, several Provincial Governments undertook hydel development under public ownership. In 1931, Tamil Nadu (Madras) launched its Pykara Scheme — in the Nilgiris — with an initial capacity of 18,750 kw., utilizing a fall of 1,000 meters, one of the highest in the world then, —and followed it up with a 30,000 kw. power station at the toe of the Mettur Dam, which was constructed to extend irrigation under the time honoured canal system of the Cauvery delta. Uttar Pradesh developed the falls along the Ganga Canal with a chain of 7 power stations with an aggregate installation of 18,900 kw. from 1927 to 1937. The Punjab inaugurated its 48,000 kw. Jogindernagar Station (now in H.P.) in the Beas Valley in 1933. Kerala (Travancore) undertook systematic development of the steep Mudirapuzha of the Periyar river system, commissioning the Pallivasal Station with an initial capacity of 13,500 kw. in 1939. Through these efforts, the aggregate hydel capacity increased to 470,000 kw. in 1940, and during the period 1940 to 1947, little progress was made, the only addition being 21,000 kw. at Papanasam in Tamil Nadu, and 48,000 kw. at Jog in Karnataka. It is noteworthy that most of these installations were single-purpose in character conceived for and financially justified entirely by their power benefits.

After 1947, Central and State Governments initiated programmes of development, in which multi-purpose river valley projects—primarily for irrigation, flood control and power generation — constituted an important corner-stone. The Bhakra Project, intended to irrigate about 1.62 million hectares of land, and with an aggregate plant capacity of 1,204,000 kw., was one of the earliest to be taken up, and its last phases of development are still under execution. The 660,000 kw. Beas—Sutlej Link Project and the 240,000 kw. Pong Dam Scheme currently under construction are sequels to this major step in the economic development of the region. Almost simultaneously with the Bhakra Project, the first phase of the Damodar Valley Project envisaging construction of four dams at Tilaya, Konar, Panchet Hill and Maithon for the prime purpose of controlling the devastating floods of the Damodar, but with ancillary facilities for production of 104,000 kw. of power and extended irrigation to 10.28 lakh acres, was taken up and this phase of development has been substantially completed. The Hirakud Dam Project in

Orissa — with a projected installed capacity of 270,000 kw. and irrigation command of 2.4 lakh hectares — was taken up in 1948 as the first of a series to harness the large water resources of the Mahanadi river. Systematic development of the resources of the Chambal river was taken up in 1953 in Madhya Pradesh and Rajasthan to provide 386,000 kw. of power and irrigation to 5.7 lakh hectares. The other important multiple-purpose projects taken up and completed are the Tungabhadra in Karnataka/Andhra and Bhadra in Karnataka, under construction are the Parambikulam Aliyar Project of Tamil Nadu, Ukai in Gujarat and Ramganga in Uttar Pradesh. These multi-purpose projects have contributed substantially to the rapid growth of hydel installations since 1955.

Besides these multi-purpose projects, a number of power projects, single-purpose in character, were also implemented all over the country since 1947. The 115,000 kw. Machkund Station in Andhra Pradesh and Orissa was completed in 1955, and this scheme has fostered development lower down the Sileru Valley at Upper Sileru (120,000 kw.) which has been completed and Lower Sileru (300,000 kw.) and Balimela (240,000 kw.) which are currently under active development. In Tamil Nadu, the 36,000 kw. Moyar Scheme was completed in 1952 and this was followed up by the 140,000 kw. Periyar Station in 1958, which has also been completed. The cascade of five stations of the Kundah Project utilize a total fall of about 1,900 m. Kerala implemented the 48,000 kw. Sengulam Station in 1954, and 32,000 kw. Poringalkuthu Station in 1957. The last in the chain of Mudirapuzha developments, Nariamangalam (45,000 kw.) and Penniar (30,000 kw.) were commissioned in 1960-61 and 1963-64 respectively, and the Sholiar (54,000 kw.) Scheme in 1968-69. Also the 300 MW Pamba-Kakki (Satirigiri) Project was completed in 1967-68. At present the 390 MW Idikki Project is under constructon. In Karnataka, all efforts were concentrated on the giant 890,000 kw. Sharavathi Project — one of the most economical sites in the country where the first unit of 89,000 kw. was commissioned in 1964 and 712,000 kw. capacity has so far been commissioned. The main 240,000 kw. Koyna Station was commissioned in Maharashtra in 1961, and has since been followed by the 300,000 kw. second stage development of the same project. In Uttar Pradesh, the 300,000 kw. Rihand Project was commissioned in 1961-62 and has been followed up by the 100,000 kw. Obra Station, and the first stage of the Yamuna Valley Development (84,000 kw.) The further stages of the Yamuna Valley Development with an aggregate installed capacity of 390,000 kw. is presently under construction. In Assam, the 8,400 kw. Umtru Station commissioned in 1956 has been followed by the recently completed Umiam-Barapani Project (54,000 kw.). Besides these, three Central sector hydro-electric projects *viz*. Siul (180 MW) in Himachal Pradesh, Salal (270 MW) in Jammu and Kashmir and Loktak (70 MW) in

Manipur are at present under construction for regional benefit. When most of the major developments now underway are completed, about 18% of the country's total hydel potential would have been developed.

The firm hydel potential of India's rivers was placed at around 3.5 million kw. continuous (18,400 million kwh. of annual energy output) by J. W. Meares, the then Chief Engineer, Hydro Electric Survey of India and Electrical Adviser, in 1921. This was long known to be a serious underestimate but no systematic reappraisal was carried out till the Central Water and Power Commission (Power Wing) conducted a comprehensive survey from 1953-58 through which the total firm hydel potential, comparable of economic exploitation, was placed at 41.15 million kw. (corresponding to an annual energy output of 216,000 million kwh.) based on 260 specific schemes. The latest assessment takes into account all practical limitations on development such as reservoir storage due to submergence and other priority uses for flood control etc., abstractions of river flows for irrigation, reservoir operation for other uses and those set by economic considerations. It leaves room for slight upward revision only in the Upper Himalayan ranges.

Of the country's total potential, about 10,300,000 kw. represents the potential of simple "run-of-the-river" type projects in the Himalayan ranges and the rest of "storage type" projects. "high head" type projects utilizing drops over 300 m. — account for about 13,630,000 kw.; "medium head projects" in a head range of 30-300 m — account for 23,860,000 kw., the bulk of the total; and "low head projects" — ranging from 7.5 m. to 30 m. — form the smallest category with a total of about 3,660,000 kw.

India's hydel resources are fairly evenly distributed all over the country, there being few regions which are situated more than 480 km. from major concentrations of hydro power. The north-eastern region covering Assam and NEFA, (now Arunachal Pradesh) endowed with the most favourable relief, and unfailing fast flowing Himalayan streams and rivers of the Shillong plateau which drawn in the heaviest precipitation in the world, naturally has the highest potential estimated at 11,600,000 kw., of which only 2,570,000 kw. depend on reservoir storage. The bulk of the utilizable power potential of the Himalayan rivers are located all along the foot-hills and command the entire Indo-Ganga and Brahmaputra plains. The most important concentration of potential hydro power beyond the region of influence of these Himalayan sources, lies in the high ranges of the Eastern Ghats, where tributaries of the Godavari have an aggregate potential of about 6,148,000 kw. The potential of the Western Ghats aggregate to about 4.7 million kw. of which about 2.7 million kw. lie in the north-western corner of Karnataka State, the balance being in the Nilgiri and Anamalai (Cardamom) ranges of Tamil Nadu and Kerala.

The economics of hydel development involve consideration of a large number of factors, which vary considerably from site to site, and normally no generalization is easily possible. Development costs vary from time to time. Allocation of costs of common works of multiple-purpose schemes affording several benefits, is complex. These difficulties are further enhanced by the fact that hydel sites have different values and potentialities when operated in isolation and in co-ordination with other stations of a large inter-connected grid. Generally, however, it would be accurate to state that the costs of hydro energy generation vary almost in direct proportion to the investment per kw. of firm capacity, at a rate, which taking into account prevailing interest rates would, in general, not exceed 9%. The cost of energy production from various schemes in operation today generally varies from about 2 paise per unit to 4 paise per unit. The costs of development of hydro power during the next two decades is expected to fall well within this range, taking into account the relative magnitudes of the works involved on these projects and their costs.

While on purely economic consideration, hydro resources should have played a greater role in development of electricity supply in this country, an important handicap in the past has been the lack of sufficient number of investigated schemes capable of timely implementation to meet rapidly growing demands for power. Two important decisions taken in the early sixties by the Government of India are expected to improve the situation and hasten future development. The first was in regard to preparation of long-term Perspective Plans, within the framework of which, hydel schemes, involving relatively longer gestation periods, could be suitably dovetailed. The second was the decision to embark on a country-wide scheme of extensive field investigations of hydel projects, so that fully investigated schemes would be available well ahead of time for implementation under the country's Five Year Plans. Special assistance in procuring drilling and other equipment required for this purpose is being obtained under a programme of assistance from the U.N. Special Fund. The first phase of this work of country-wide surveys covering about 62 schemes, out of the various potential sites pin-pointed by the Hydro-electric Survey of India, when completed, will not only remove an important lacuna, which hampered development of hydel power in the past but also pave the way for rapid detailed surveys of the rest of the schemes, and enable a more exact appraisal of the entire hydro resources of the country.

Oil And Gas: During the last few decades, oil and gas have been playing increasingly important roles in the industrially advanced countries in the energy field. The ease and efficiency with which they can be handled has been primarily responsible for their pre-eminent role.

However, in the particular field of electricity production — where alternatives are available — the important influencing factor, apart from availability of indigenous resources, is their cost. In this context, it is worthy of note that even in countries rich in oil and gas resources, these have not been used to any large extent for electricity production compared to other resources. India is disadvantageously placed both in respect of availability of resources of oil and gas and their costs. The impact of oil and gas on electricity development till fairly recently has, therefore, been negligible, being limited to small diesel driven generators, used either as nursery units to built up demands for emerging grid systems or to meet local requirements of electricity at isolated points beyond the reach of other sources of power supply. To an extent, they have been used as emergency alternatives or as small ancillary sources to coal firing in boilers. Over the last decade, only about 5% of oil and gas consumption has been used for electricity production.

A major programme of expansion of refinery capacity has recently been undertaken to meet growing demands for various petroleum products. Some of the by-products of refineries such as furnace oil, pitch, refinery gas, naptha etc. could advantageously be used for electricity generation. Sizeable resources of gas which can also be used for power generation have also been recently discovered. These have stimulated some local interests in these resources for electricity development.

Oil can be used directly as fuel in prime movers driving electrical generators as in diesel installations or as fuel in power station boilers to feed conventional steam turbo-generator sets. While gas also can be used in power station boilers, its direct use in gas turbine driven generators is gaining application in specific situations.

At present, the total installed capacity of diesel installation in the utility and non-utility sectors is only about 400,000 kw. forming only about 1.5% of the total installed capacity. With the emergence of nation-wide power grids, these diesel stations are being shut down gradually and their capacity would soon become relatively insignificant.

After the setting up of refineries at Bombay, their by-products have been used for power generation at the 337.5 MW Trombay Station, though the station is not entirely dependent on these fuels. Similar stations to use by-product fuels of Koyali and Barauni refineries have been envisaged while building the 534 MW Dhuvaran Thermal Power Station in Gujarat and 145 MW Barauni Thermal Power Station in Bihar. Surplus fuel oil from the Koyali refinery is proposed to be utilized in the 217.5 MW of Sabarmati Station at Ahmedabad. The 30 MW power station under construction at Gauhati in Assam and the 400 MW power station sanctioned for construction at Ennore near Madras will also use by-products from refineries close by.

The 69 MW gas turbine power plant at Noharakatiya in Assam is the

first station in the country to use the naturally available gas in gas-turbine driven generating units. The main advantages of this type of installations are their low capital costs and ease of construction and operation. They are also ideally suited for intermittent operation for peak loads as they can be started and stopped quickly. The major disadvantages are their poor efficiency and higher costs compared to conventional steam stations. As such, they are selected generally either for installation in areas where the fuel is very cheap or to meet demands due to unexpected rate of load growth. Recently, it has been finding wide application to meet system peak demands which occur only for short periods during the day.

Two gas turbine units, 27 MW each, have been recently installed in Gujarat. Two units of 10 MW each at Hyderabad to meet emergent requirements and peak loads in Andhra Pradesh and two more units of 12 MW each, one at Gauhati and one at Muradnagar in Uttar Pradesh been have installed. These units are designed to operate on petroleum products like furnace oil.

Future trends in the use of oil and gas for electricity production have to be seen in the context of our resources and present pattern of use. It was only during the Second Plan, which emphasized industrial development, that an intensive programme of exploration of the country's oil and gas reserves was initiated and some notable discoveries made. India has an area of about one million sq. kilometers of sedimentary rocks which theoretically may be taken as 'potential for oil'. These sedimentary regions are located along the vast Indo-Ganga and Brahmaputra plains, around the Gulf of Cambay and the Rann of Kutch in Gujarat, along the west coast between Bombay and Goa, along the Kerala coast and along the eastern coast of Tamil Nadu, Andhra Pradesh and Orissa. Of the regions explored for oil and gas so far, the most promising are those in Assam and Gujarat. The proved and indicated recoverable reserves of oil, according to present knowledge, have been estimated at about 150 million tonnes, almost all of which are located in Assam and Gujarat. Gas reserves in these fields are estimated at 63,600 million cubic metres.

Prior to independence, indigenous production of crude oil and its refining was restricted to a small oil industry near Digboi in Assam. Subsequent developments have been at a relatively rapid rate and, in 1968-69, India produced about 6 million tonnes. This is expected to increase further to around 8.5 million tonnes per year by 1973-74 India has at present a refining capacity of about 17 million tonnes per year. The refining capacity is proposed to be expanded to 26 million tonnes per year by 1973-74.

India's petroleum industry is being rapidly expanded to meet mainly the growing demand for petroleum products in the transport, indus-

trial and domestic sectors. Even to meet these essential requirements, the present picture is that reliance has to be placed heavily on imports. As such, oil and gas are not expected to play a significant role in power development in India and would be limited, as in the past, to the use of by-product fuels from the expanding refinery industries which are surplus to other essential uses.

Nuclear Resources: In 1945, the world first became aware of a new and apparently unlimited source of energy through the nuclear explosions at Hiroshima and Nagasaki in Japan. During the subsequent two decades, vast strides have been taken in the technology of harnessing this energy for electricity production, which have brought it within the realm of economic feasibility. Nuclear reactors have now been developed in which heat is derived in a controlled manner, and utilized thereafter to generate steam for use in conventional turbo-generators. That this discovery has not come a day too soon would be apparent when one is confronted with the staggering energy requirements to sustain, for a population as large as India's, a standard of per capita consumption prevailing today in the advanced countries of the world. India's conventional resources of electric power fall far short of these requirements. Apart from its importance as a new source of energy, its special significance for energy deficient areas lies in its relative freedom from the geographical limitations imposed on development of conventional resources, like water power and the mine-head thermal stations.

Nuclear energy stems from the destruction of mass during nuclear disintegration, or fission, the transformation following Einstein's well-known equation $E = mC^2$, according to which the energy equivalent to conversion of 1 lb. of matter is 11,000 million kwh. or roughly the output of a 200,000 kw. power station, when run continuously, for six years. However, it is only a very rare isotope of uranium (U235) — with an occurence of 1 part in 140 of natural uranium (U238), itself not too abundant in nature — which is fissible, *i.e.*, capable of such fission. The separation of this isotope, constituted the most challenging aspects of nuclear technology. The relatively more plentiful natural uranium (U238) and thorium (U232) are also equally important since they are "fertile", i.e, they are capable of being rendered "fissible", by nuclear bombardment, when, by neutron absorption, they are transformed into plutonium (U239) and an isotope of uranium (U233). The development of nuclear energy centres round fuels with varying concentrations of these isotopes of uranium, U233 and U235, and plutonium (U239).

Unlike the conventional methods of electricity production, where the energy value of potential water power resources and of fossil fuels, can be readily assessed on the basis of well established conversion factors,

in the nuclear field, the energy that can be obtained from a given quantity of nuclear fuel, varies substantially with methods of use.

It is well known that the only naturally occurring fissible material is uranium (U235), which occurs to the extent of 0.7% in natural uranium. Thus, if one of the inert (fertile) uranium is converted into fissile material, a tonne of natural uranium will yield energy equivalent to about 21,000 tonnes of coal. The know-how reserves of uranium in India upto 1956 was 15,000 tonnes. On this basis, equivalent energy would be about 315 million tonnes of coal.

But in the course of liberating atomic energy, the fertile materials uranium (U238) and thorium (U232) can be converted into the fissile materials, plutonium and uranium (U233) respectively.

As an average figure for a reactor working on natural uranium, one may assume that new fissile material is produced equivalent to 80% of the fissile material burnt The total energy released from a tonne of natural uranium is then increased by a factor 5.

Since it is the intention in India to avoid the construction of a gaseous diffusion plant, it is clearly necessary to set up in the initial stages atomic power stations which operate on natural uranium and effect the maximum conversion of fertile to fissile material. This pure or enriched material could subsequently be used in breeder power stations (where the fissile concentrations of fuels increase with use due to higher rates of conversion of fertile material) thus enabling our entire reserves of uranium and thorium to be utilized for power production. On this basis, the reserves of uranium and thorium indicated are equivalent to 600,000 million tonnes of coal.

For practical and economic reasons, therefore, the spent fuels of nuclear reactors, after specific periods of Irradiation in the reactors cannot be discarded as those from conventional stations, but have to be taken out and specially reprocessed progressively to recover their unused fissile components. The extent of fuel "burn up", while they are in the reactors, and of conversion of fertile material into fissile ones varies with the type of fuel used, its degree of enrichment, the type of arrangements to moderate and control nuclear reactions, and several other factors, and these have all to be taken into account in any assessment of the practical value of nuclear fuels. While such a detailed examination is beyond the scope of this review, it is interesting to note that in the type of reactor proposed to be installed at Rana Pratap Sagar, 2,000 tonnes of uranium are expected to be adequate for a 1,000,000 kw. power plant, for operation at a load factor of 75% for 20 years.

In 1956, the total amount of uranium available in India was estimated at about 15,000 tonnes — 7,000 tonnes from the monazite sands of Kerala, 4,000 tonnes from the Singhbhum fields of Bihar, 3,000 tonnes from the Aravali fields, Khetri, Dariba, Khandela, etc., the rest representing addi-

tional reserves from the above uranium fields, available at less economic rates. The resources of thorium were then placed at about 150,000 to 180,000 tonnes from monazite sands.

Recent investigations have shown that the uranium deposits in Bihar, Rajasthan and Tamil Nadu aggregate 30,000 tonnes. Thorium reserves have been revised upwards to 340,000 tonnes. These thorium resources have been described as equivalent to all the world's known uranium in ores, containing 0.1% and above. It has, however, to be remembered that, while ultimately this thorium can be utilized, a number of problems involved in the conversion of thorium into fissible U233 remain to be solved. When this is done, India would indeed be very rich in sources for nuclear fuels.

The basic components of a Nuclear Power Reactor are (a) the core, where fission takes place, with its associated "moderation" and "control" systems; (b) the coolant systems to transfer heat from core to a heat exchanger, where it is used to raise steam for operation of conventional turbo-generators; and (c) a heavy shield surrounding the core and ancillary parts, to contain lethal emanations. Reactors can be fuelled either by natural uranium, enriched uranium — where the fissible content is artificially increased — or thorium. Those where "moderators" are used to slow down neutrons emerging at high velocities from fission reactions, are called "Thermal Reactors", whereas others, without moderators, using fast neutrons, are known as "Fast Reactors". There are "Homogenous" type, where the fuel is intimately mixed with the moderator and the "Heterogenous" type, where the fuel is in the form of individual blocks located at intervals within the moderator. The moderator itself can be either of light water, heavy water, or graphite. Carbon dioxide, water liquid sodium, etc., offer alternatives for cooling. The fairly wide choice of fuels, moderators and control systems, and coolants, give rise to a very large array of possible reactor types, from which a choice has to be made of the most advantageous techniques for indigenous development. This choice of technique is influenced, not inconsiderably, by the ancillary facilities required for production (including enrichment) of fuel, its chemical reprocessing, disposal etc., all of which require very substantial investments and technological skill.

The broad strategy of development of nuclear power in India has been influenced by the decision to avoid construction of a gaseous diffusion plant for separation of U235 — in view of its heavy cost and large requirements of electricity — and, initially to concentrate, instead, on indigenous production of natural uranium fuels to be employed in special power reactors, which, besides affording heat for generation of electric power, would also enable conversion of fertile U 238 to fissile plutonium (U239). These first stage power reactors would provide sufficient fissile material for fabrication of enriched fuel elements for

second stage power reactors of the fast type, with which it is expected that the far more abundant thorium U232 can be converted to fissile U233 for use in later stage reactors. In the third stage, when sufficient quantities of Uranium 233 are produced, they are proposed to be used in improved reactors of the "Breeder" type, where the rate of conversion of fertile material would be so high that the reactor would, in effect, produce more U233 than it would consume.

India's nuclear development programme has been broadly oriented to this method, and development work has been initiated by the Atomic Energy Department of the Government of India, set up in 1954 as the Atomic Energy Commission, on several fronts covering exploration and mining, fabrication, processing and re-processing of fuel elements and other related aspects. Over 7,000 scientists and technicians are engaged on this vast and rapidly expanding programme of work.

In 1958, the Planning Commission approved the inclusion of an atomic power station in the Power Development Programme of the Third Five Year Plan and to install it in the energy deficient western region of the country, to feed the power systems of Maharashtra and Gujarat States. After preliminary investigations, a suitable site was selected at Tarapur on the western sea board near the inter-state border. In May 1964, a contract was placed with M/s. G.E.C. of U.S.A. for construction of a two-reactor power station with an output of 380,000 kw. and had been commissioned in 1969-70. The total outlay on the power station is estimated at Rs. 68.3 crores. The Department of Atomic Energy of the Government of India has estimated that the cost of power from the station would be about 4.5 paise per kwh.

The second in the chain of power stations proposed to be set up in this country is to be located in another energy deficient region of the country i.e., Rajasthan, at Rana Pratap Sagar, on the foreshore of the Rana Pratap Sagar reservoir of the Chambal Valley Project. The station will ultimately house two reactors, with an electrical output of 200,000 kw. each, of which one reactor would be installed in the first stage. The cost of power generation from this station has been estimated by the Department of Atomic Energy at 5.5 paise per kwh. In the southern region of the country, which has scarce fuel resources, the hydro-electric resources, which have mainly substained power development in the early years, are being gradually fully developed to meet rapidly increasing demands. This is another region of the country which has been recognized as a potential energy deficient area for early initiation of nuclear power generation. Here, the Planning Commission has approved the proposal to build the third atomic power station with an output of 400,000 kw. at Kalpakkam in Tamil Nadu.

The Tarapur Atomic Power Station will be fuelled initially with enriched uranium fuel elements from the U.S.A. It is proposed to

fabricate subsequent replacement charges in this country, although enriched uranium would still have to be imported. The nuclear fuel complex being set up at Hyderabad will supply the initial and further replacement requirements of CANDU type stations likely to be set up in the future. The projected nuclear fuel complex at Hyderabad will cover the entire range of operations from raw mineral concentrates to finished fuel elements and other reactor components for power reactors of different designs. The heavy water-cum-fertilizer plant at Nangal, has been designed to produce heavy water as a by-product with an annual capacity of 14 tonnes. Plans are afoot substantially to increase the indigenous output of this most essential requirement for future power stations. Besides these activities, the Atomic Energy Department is actively implementing a large number of projects covering explorations, mining, extraction of materials, fabrication of fuels and material requirements, building up indigenous expertise all along the field. According to present anticipations, the total installed capacity of nuclear power stations at the end of the Fourth Plan would be of the order of 580,000 kw.

III. Trends — Present and Future

At the end of March 1970, the total installed capacity of all power stations of the country was about 15.5 million kw., of which 14.1 million kw. was from utilities, the balance representing the capacity of industrial units, generating their own power mostly through thermal installations. Of the capacity of power utilities, private sector installations would aggregate to only about 1.6 million kw. or about 10% of the total. The break-up between thermal, hydro and diesel installations would be about 9.0 million kw., 6.1 million kw. and 0.4 million kw. respectively. Notwithstanding the massive increase of nearly 300% during the last decade in power plant capacity, the average per capita consumption of electricity of the country in March 1970, was only of the order of 84 kwh., varying from about 50 kwh. in Andhra Pradesh to about 255 kwh in Delhi territory. In comparison, the per capita consumption in some of the advanced countries in 1969 was 7,000 kwh. in the U.S.A., 3,700 kwh. in U.K., 2,400 kwh. in France and 2,630 kwh. in the U.S.S.R. Admittedly one of the most urgent needs of the country is to accelerate electricity development as rapidly as possible and ensure the most wide-spread benefits therefrom. According to present anticipations, the targets for total installed capacity in the country at the end of the Fourth Plan (1973-74) would be about 23 million kw., and at the end of the decade 1980-81 about 52 million kw.

The country has ample resources to sustain the large programme of development that lies ahead. The field, however, is capital intensive

requiring use of materials and equipment which are still in scarce supply, and require heavy imports. During the First, Second and Third Plans, the outlays on power including generation, transmission and distribution were of the order of Rs. 302 crores, Rs. 525 crores and Rs. 1,012 crores respectively, representing about 12.7%, 11% and 13% of the total Plan outlays. The import or foreign exchange component of these investments were of the order of Rs. 117 crores, Rs. 160 crores and Rs. 362 crores in these successive Plan periods. During the Fourth Plan, the outlay on power is Rs. 2,523 crores, representing 10.1% of the total Plan outlay. It is, therefore, clear that a rapid rate of growth can be maintained in future only on the basis of limiting outlays by choice of the most economic alternatives available and maintaining utmost efficiency of operation by system inter-connections and better use of existing plants. The broad strategy of development would be to rely on development of coal-based thermal power in and around the colliery areas, to develop available hydro resources to the maximum feasible extent, to rely on nuclear resources in increasing measure in the regions of the country where resources of conventional resources fall short of demands. On this basis, it is expected that at the end of the Fourth Plan and the decade 1971-81, the approximate contributions of thermal (including diesel plants), hydro and nuclear resources to the total would be as given below:—

TABLE XI

	Hydro	*Thermal*	*Nuclear* (*Million kw*)	*Total*
End of Fourth Plan (1973-74)	9.4	12.7	1.0	23.1
End of Decade 1971-1981	22.0	25.8	4.2	52.0

While planning for future development, it is essential to note that the power resources of the country are so distributed that economic development cannot be ensured on the basis of Plans drawn up within the political division of the country into different States. On the thermal side, the need to utilize the by-products (middlings) of coal in large power stations would necessitate consideration of a wide area of reticulation, extending beyond the State boundaries around washery oriented sites. Similarly, if advantage is to be taken of the economic trend towards use of very large thermal installations, their zone of influence would again have to be based on purely economic considerations. In the case of hydel development, it is even more obvious that geographical considerations would have to predominate in the selection of schemes, and that the large and economic concentrations of hydel power, should be uti-

lized in the widest possible region, irrespective of the actual location of hydel sites with reference to State boundaries. These considerations have led to the concept of regional planning for power development in India with super grids, transmission networks, and distributing power in an economic manner throughout these regions. Closely integrated operation of all power stations in economic regions would result in a variety of benefits. They make it possible to keep reserve capacity to a minimum, and to maximize benefits from existing installations, reducing energy production costs in the bargain. They would enable the choice of the most economic sites for further development, adoption of larger sizes for reducing costs and attaining higher efficiencies, and last, but not least, they render invaluable assistance to stricken areas during breakdowns. These compelling reasons have led to general agreement on this aspect of power policy.

The country has now been divided into five main regions, and under the Central Electricity Authority, five Regional Boards have already been constituted. These are:

(i) Northern Region comprising the States of Punjab, Uttar Pradesh, Rajasthan, Jammu and Kashmir, Himachal Pradesh and the Union Territory of Delhi.

(ii) Eastern Region comprising the States of Bihar, West Bengal and Orissa.

(iii) Western Region comprising the States of Gujarat, Maharashtra and Madhya Pradesh.

(iv) Southern Region comprising the States of Tamil Nadu, Kerala, Karnataka and Andhra Pradesh.

(v) North-Eastern Region comprising the States of Assam, Manipur and Tripura.

The general functions of the Regional Boards will be to :

1. plan generation and major transmission programme in the region taking into account the load anticipations;
2. advise on joint projects involving generation and major transmission to the extent necessary;
3. review the progress of projects in the region;
4. plan and ensure the efficient integrated operation of the constituent systems in such a manner that, at any given time, the total amount of electricity generated and transmitted shall give optimum benefits to the region as a whole;
5. develop generation schedules and the amount of power to be exchanged between the various power systems in the region from time to time;
6. work out a co-ordinated overhaul and maintenance programme of the generating plant for the entire region;
7. schedule exchanges with other Regional Power Agencies; and

8. lay down a suitable tariff structure which should govern the exchange of power within the region and with other regions and devise suitable machinery for billing and collection and settling of any disputes on this account.

The growth of these Regional Grids would represent a major step in the development of power resources in the country. The day is not far off, when these Regional Grids would, in turn, be inter-connected to form a single All-India Grid, traversing the length and breadth of the country and fulfilling an important socio-economic objective, i.e., harnessing all the natural resources available in an area or region as economically as possible, according to the latest known techniques, ensuring the utmost reliability of supply to the consumer wherever he may be situated.

CHAPTER IV

HUMAN RESOURCES AND THEIR DEVELOPMENT

I. Human Factor and Economic Growth

Gross National Product (GNP) has been traditionally ascribed to the combined output of three productive factors, *viz.*, land, labour and capital. This would be true for a static model or a stationary state of affairs. But when GNP is viewed qualitatively and dynamically over a period of time, it cannot be ascribed only to the three factors. A number of studies have indicated that the human factor also accelerates economic growth. Increases in the GNP can be explained, for the main part, as a return on the very heavy investment which all countries undertake at all times in the development of their human resources. This includes all expenditures -- capital and recurrent — on all forms of formal education which invest human resources with knowledge and skill on all forms of mass media which circulate knowledge over a wide area, and on all forms of development and research. In developing human resources, the active agents of modernization are the human beings as they alone can accumulate capital, exploit natural resources and build political and social organization. In the ultimate analysis, it is on the development of people and the effective commitment of their energies and talents that the wealth and vitality of nations rest.

The two reciprocally related processes are the development and utilization of human resources. While the development of human resources essentially means the enlargement of personnel potential through the acquisition of beliefs, values, skills and knowledge, the utilization of human resources development is not only providing so many jobs for people but also providing jobs that will enable them to do what they are become capable of doing.

It has to be accepted that accelerated economic growth is to a large degree a function of adequate or commensurate development of human resources and that increase in the GNP has causal relationship with increase in investment in education, health, housing, scientific research, etc. Investment in human resources, to be productive, implies that all expenditure must be the result of a system of rational and integrated educational planning as a part of an overall and social development programme in a country. This involves, among other things, mapping the demand of all types of personnel over a requisite period of time, identifying the educational and training sectors which are hindering economic growth through either under-supply or over-supply of skilled personnel and concentrating investment in those sectors which need to

be expanded, bearing in mind the inter-related character of the different levels of education and training and educational pyramid, undertaking a qualitative appraisal of the content of education and training programmes and gearing them both to the humanistic values and traditions of society and to the development demands of the growing economy, particularly its innovation-mindedness, reducing rapidly and finally eliminating all forms of waste in the educational system.

The size, composition and socio-cultural characteristic of a population are the basic determinants of the pace and level of economic development. Not only do demographic forces influence the nature and quantum of all factors of production, they also determine the kind of economic climate within which all activity takes place. The constant inter-action between man and his environment has an effect on the size and quality of the natural resources base. Similarly, demographic and cultural factors are important determinants of the rate of capital accumulation. The quality of the human resources also plays an important role in determining the type of technology, the modes of organization, and the targets of production. Human resources (or the total population) have a two-pronged relationship with economic development. As a resource, people are available as factors of production to work in combination with other factors. As consumers, the goal of economic development is to maximize realization of their desires and aspirations. Thus, economic analysis has to consider the human element in both its roles as producer and as consumer.

II. Indicators of Human Resource Development

It would be useful to identify quantitative indicators of human resource development and to find out whether there are significant statistical relationships among various human resource indicators and measures of economic development. Quantitative approach in identifying indicators of human resource development obviously presents certain difficulties. But at the same time, even qualitative approach involves difficulties of evaluation. Recently, several attempts have been made to determine qualitative relationships between indicators of educational development and economic growth for a limited number of countries. Here also, one has to distinguish between the human resource indicators which might be desirable and which are available. It is, however, agreed that the most important indicators of human resource development fall into two general categories:

(i) those which measure a country's stock of human capital; and

(ii) those which measure the gross or net additions to the stock or more precisely the rate of human capital formation over a specified time period.

While the stock of human capital indicates the level of human resource development which has been achieved by a country, the rate of human capital formation indicates its rate of improvement. In both cases, one is forced to make a distinction between those indicators which would be regarded as desirable if data were available and those which are used because data are available.

For purposes of international comparison, the following indicators of stock of human capital would be useful:

(i) levels of educational attainment; and

(ii) the number of persons, expressed as percentage of the population or labour force, who are in high level occupations.

Under category (i) one would like to particularly indicate the first (primary or elementary), second (secondary) and third (higher) levels of educational attainment. The last two are particularly important in indicating the stock of high level manpower, especially the proportions in the second and third levels which have completed scientific and technical courses. Under category (ii) the numbers would relate to the people in selected strategic occupational groups like scientists, engineers, managers, teachers, doctors and dentists, scientific and engineering technicians, nurses and medical assistants and persons in the foreman and skilled worker category.

In addition to data on educational attainment for the latest available census years, it may be useful to treat literacy also as a measure of human capital. In a number of studies, literacy is regarded as an important indicator of human resources development. This indicator is, however, relatively poor because the census data is based on getting answers to questions "can you read or write". The resultant answers may vary widely depending upon the interpretation put on the question, and the reported estimates also vary within ranges.

The second best measures, indicating the growth of human resource development, universally recognized, are as under:

(i) number of teachers (first and second levels) per 10,000 population;

(ii) engineers and scientists per 10,000 population:

(iii) physicians and dentists per 10,000 population;

(iv) pupils enrolled at first level (primary education) as a percentage of the estimated population in the corresponding age-group;

(v) the adjusted school enrolment ratios for first and second levels combined;

(vi) pupils enrolled at second level (secondary education) as a percentage of the estimated population in the corresponding age-group; and

(vii) enrolment at the third level (higher education) as a percentage of the population in the corresponding age-group.

The first three are partial measures of the stock of human resources and the next four are measures of additions to it. In addition to these, there are two other indicators of human resource development which indicate the orientation of higher education. These are:

(i) the percentage of students enrolled in scientific and technical faculties in recent years; and

(ii) the percentage of students enrolled in faculties of humanities, fine arts and law in the same year.

While the task of identifying indicators of human resource development is somewhat easy, the collection of data relevant to the selected indicators, their presentation in a coherent form and an analytic study indicative of the growth or otherwise of human resources development, is undoubtedly challenging and to some extent difficult.

III. Survey of Human Resource Potential in India

Any survey of human resource potential would be incomplete without a study of the demographic trends, its composition in terms of various age-groups, under-privileged and socially backward classes, distribution by livelihood classes, levels of education, etc. An attempt is made below to present briefly the demographic position in India.

Population in India has been growing at a very fast pace. While in 1901, the population was 238 million, it rose to 319 million in 1941, 361 million in 1951, 439 million in 1961 and to 548 million in 1971.

TABLE I

Growth of Population in India, 1901-1971
Total Population

Year	*Males*	*Females*	*All Persons*
1901	120,760,506	117,330,453	238,337,313*°"
1911	128,340,309	123,665,161	252,005,470
1921	128,504,733	122,734,759	251,239,492
1931	142,873,864	135,734,938	278,867,430*
1941	163,622,013	154,632,036	318,539,060*
1951	185,456,252	175,494,113	360,950,365
1961	226,208,008	212,864,574	439,072,582
1971	283,936,614	264,013,195	547,949,809

*The distribution of population by sex of Pondicherry for 1901 (246,354), 1931 (258,628) and 1941 (285,011) is not available. The figures for these years are, therefore, exclusive of these population so far as distribution by sex is concerned.

°"In 1901, sex-wise distribution of Chandannagar (26,831) of West Bengal and Gonda (18,810) of Uttar Pradesh is not available.

The proportion of females to males is slowly declining over the years. While the number of females to per 1,000 males was 946 in 1951, it declined to 941 in 1961 and to 932 in 1971.

Bulk of the population, however, has been in rural areas. According to the Census of 1951, the population in rural areas was 295 million *i.e.*, 82.7 per cent of the total population of 357 million and according to the Census of 1961, the rural population was 360 million, 82 per cent of the total population of 439 million. However, according to the Census of 1971, the rural population was 439 million. 80 per cent out of the total population of 548 million.

TABLE II

Total Population in India 1951, 1961 and 1971

Urban and Rural Classification

Category		1951*	1961	1971
1		2	3	4
		(000's)		
Males	Urban	33,273 (18.1)	42,789 (18.9)	-
	Rural	150,061 (81.9)	183,504 (81.1)	—
	Total	183,334 (100.0)	226,293 (100.0)	283,937 (100.0)
Females	Urban	28,602 (16.5)	36,148 (17.0)	—
	Rural	144,943 (83.5)	176,794 (83.0)	—
	Total	173,545 (100.0)	212,942 (100.0)	264,013 (100.0)
All Persons	Urban	61,875 (17.3)	78,937 (18.0)	109,097 (19.9)
	Rural	295,004 (82.7)	360,298 (82.0)	438,853 (80.1)
	Total	356,879 (100.0)	439,235 (100.0)	547,950 (100.0)

*Excludes figures for Jammu and Kashmir; Goa, Daman and Diu, Pondicherry (Karaikal, Mahe and Yanam); NEFA; major portion of Nagaland and Dadra & Nagar Haveli.

Figures given in brackets indicate percentages.

While the total increase in population during 1951-61 was 82 million, in rural areas alone the increase was of the order of 65 million. There has, however, been some slight shift in the rural population. While the percentage of population living in rural areas in 1901 was 89, it decreased to 82 in 1961. Urbanization is both a consequence and a causal factor in economic development. The rate of urban growth is an important index of progress of the economy. It was expected that there would be much faster rate of urban growth in the 1951-61 decade. The urban population in 1951 was 17.3 per cent of the total population and it was 18 per cent in 1961 Many reasons have been advanced for the slow rise in the growth of urban population. The Census of 1971 indicates higher trend in urban population.

The percentage distribution of India's population by four different well recognized age-groups *viz.*, 0-4, 5-14, 15-59, and 60 and over, during the period 1911-66 and projected upto 1976, is given in the following Table:

TABLE III

Percentage Distribution of India's Population by Age-Groups 1911-76

Year	*Age-group*				Total
	0—4	5—14	15—59	60 *and over*	
1	2	3	4	5	6
1911	—	38.8*	60.2	1.0	100.0
1921	—	39.2*	59.6	1.2	100.0
1931	—	38.3*	60.2	1.5	100.0
1951	13.3	24.1	56.9	5.7	100.0
1961	16.5	24.5	53.3	5.7	100.0
1966	16.3	25.3	53.4	5.0	100.0
1971**	15.7	25.8	52.7	5.8	100.0
1976**	14.7	25.6	54.1	5.6	100.0

*Relate to age-group 0—14 as break-up between the ages 0—4 and 5—14 is not available.

**Estimates.

Thus over the years, the proportion of age-group 0-14 to the total population has increased and that of the productive population (i.e. age-group 15 to 59 years) has fallen. The preponderance of the younger population increases the dependency load, leads to diversion of resources from capital formation to population maintenance and amounts to a wasteful exploitation of children workers who may be forced into work at under-developed levels of skill and stamina and may cause under-employment.

Two categories of the population belonging to weaker sections are Scheduled Castes and Scheduled Tribes. They together comprise more than one-fifth of the total population. In 1961. the population of Scheduled Castes increased to 64 million or 14.7 per cent of the total population. More than 57 per cent of the Scheduled Caste population (37 million) was concentrated in the States of Uttar Pradesh, West Bengal, Bihar and Tamil Nadu. The population of Scheduled Tribes in 1961 increased to 30 million or 6.8 per cent of the population. More than 50 per cent (17 million) of the Scheduled Tribes population was concentrated in the States of Madhya Pradesh, Orissa and Bihar.

The distribution of population in India, classified as workers and non-workers, according to 1971 Census, is indicated in Table IV.

TABLE IV

Distribution of Population in India — Workers and Non-Workers

Category	*Number of Persons in Thousands*		
	Male	*Female*	*All Persons*
Workers			
1. Cultivators	68,910	9,266	78,176
	(24.2)	(3.5)	(14.2)
2. Agricultural labourers	31,695	15,794	47,489
	(11.2)	(6.0)	(8.6)
3. Livestock, Forestry, Fishing, Hunting and Plantations, Orchards and Allied Activities	3,514	783	4,297
	(1.2)	(0.3)	(0.8)
4. Mining and Quarrying	799	124	923
	(0.3)	(0.0)	(0.2)
5. Manufacturing, Processing, Servicing and Repairs			
(a) Household Industry	5,021	1,331	6,352
	(1.8)	(0.5)	(1.2)
(b) Other than Household Industry	9,851	865	10,716
	(3.5)	(0.3)	(2.0)
6. Construction	2,012	204	2,216
	(0.7)	(0.1)	(0.4)
7. Trade and Commerce	9,482	556	10,038
	(3.3)	(0.2)	(1.8)
8. Transport, Storage and Communications	4,255	146	4,401
	(1.5)	(0.1)	(0.8)
9. Other Services	13,536	2,229	15,765
	(4.8)	(0.9)	(2.9)
(A) Total Workers	149,075	31,298	180,373
	(52.5)	(11.9)	(32.9)
(B) Total Non-Workers	134,862	232,715	367,577
	(47.5)	(88.1)	(67.1)
Grand Total	283,937	264,013	547,950
	(100.0)	(100.0)	(100.0)

This means that of the total population, 33 per cent (53 per cent males and 12 per cent females) were working. The Census of 1971 also revealed that participation rate for each sex was distinctly higher in the rural areas.

The *percentage distribution of workers by industrial categories,*

according to the 1971 Census, indicates that India continues to be a peasant economy, as shown in the Table below:

TABLE V

Percentage Distribution of Workers by Industrial Categories and Sex

Category	Total	Percentages Male	Female
1. Cultivators	43.4	46.2	29.6
2. Agricultural labourers	26.3	21.3	50.5
3. Livestock, Forestry, Fishing, Hunting and Plantations, Orchards and Allied Activities	2.4	2.4	2.5
4. Mining and Quarrying	0.5	0.5	0.4
5. Manufacturing, Processing, Servicing and Repairs			
(a) Household Industry	3.5	3.4	4.2
(b) Other than Household Industry	6.0	6.6	2.8
6. Construction	1.2	1.3	0.6
7. Trade and Commerce	5.6	6.4	1.8
8. Transport, Storage and Communications	2.4	2.8	0.5
9. Other Services	8.7	9.1	7.1
Total:	100.0	100.0	100.0

The pattern of occupational structure over the past sixty years is indicated below:

TABLE VI

Occupational Distribution of Working Force in India

Sectors	YEARS 1901	1911	1921	1931	1951	1961
Primary	71.5	74.9	76.5	74.7	74.4	76.4
Secondary	11.7	10.8	9.7	10.3	10.6	11.0
Tertiary	16.8	14.3	13.8	15.0	15.0	12.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

The Table indicates that primary employment has been increasing and the employment in tertiary sectors has been showing a decline. It also seems that the decade of planned development has not made any impact on the employment in the secondary sector. The relative upsurge of the primary sector on the one hand and stagnation and even moderate to considerable shrinkage in the secondary and tertiary sectors on the other have produced a stage when surplus agricultural labour has not been effectively siphoned off from the primary sector.

IV. Human Resources Development and the Indian Constitution

The Constitution of India, in its various articles, gives a prominent place to the development of the human factor. The Preamble of the Constitution itself is a recognition of this fact. The articles of the Constitution relating to 'Fundamental Rights' and 'Directive Principles of State Policy' among others, lay down that the State shall not deny to any person equality before the law, nor shall the State discriminate against any citizen on the ground only of religion, race, caste, sex, place of birth or any of them: nothing shall prevent the State from making any special provision for the advancement of women and children and socially and educationally backward classes of citizens or for the Scheduled Castes and Scheduled Tribes. Further, the Constitution also embodies in its fundamental rights that no citizen shall, on grounds only of religion, race, caste, sex, place of birth or any of them, be subject to any disability, liability, restriction or condition in regard to use of any public place, entertainment, etc. It has also laid down that nothing shall prevent the State from making any special provision for men and women. There shall be equality of opportunity for all citizens in matters relating to employment or appointment to any office under the State. Untouchability, which was one of the greatest banes of Indian society and discriminated man against man, was abolished by the Constitution and its practice in any form was forbidden. Freedom of speech and expression to every citizen which is a condition precedent for human resources development, is a fundamental right guaranteed in the Constitution. The Constitution also prohibits traffic in human beings and *begar* (forced labour) and other similar forms of forced labour. No child below the age of 14 years should be employed to work in any factory or mine or engaged in any other hazardous employment. Any section of the citizens residing in any part of India having a distinct language, script or culture of its own, has been given the fundamental right to conserve the same. No citizen shall be denied admission in any educational institution maintained by the State or receiving aid out of State funds on grounds only of religion, race, caste, language or any of them.

Part IV of the Constitution deals with the 'Directive Principles of State Policy' which are fundamental in the governance of the country and it shall be the duty of the State to apply these principles in making laws. Article 39 in the chapter 'Directive Principles of State Policy' has stated that the State shall, in particular, direct its policy, among other things, towards securing that the citizens, men and women, equally have the right to an adequate means of livelihood; there is equal pay for equal work for both men and women; the health and strength of workers, men and women, and the tender age of children are not abused and that

citizens are not forced by economic necessity to enter avocations unsuited to their age or strength; and childhood and youth are protected against exploitation and against moral and material abandonment. Article 41 lays down that the State shall, within the limits of its economic capacity and development, make effective provision for securing the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement and any other cases of undeserved want. Provision for just and human conditions of work, living wage, etc., are set out in Articles 42 and 43 of the Constitution. Article 45 stipulates that the State shall endeavour to provide, within a period of ten years from the commencement of the Constitution, for free and compulsory education for all children until they complete the age of fourteen years. Article 46 of the Constitution lays down that the State shall promote with special care the educational and economic interests of the weaker sections of the people, and, in particular, of the Scheduled Castes and the Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation.

Article 41 of the Constitution lays down that the State shall, within the limits of its economic capacity and development, make effective provision for securing the right to education, but the right to education, as such has not been included in the list of fundamental rights under the Constitution, although Articles 29 and 30 grant certain educational rights to the minorities. It seems that the Constitution makers could not make the right to education a fundamental right and the extreme difficulty they contemplated even in implementing Article 41 under the 'Directive Principles of State Policy' is evident in the phrase 'within the limits of its economic capacity and development'. Article 45 of the Constitution is important from the point of view of human resource development which makes provision for free and compulsory education for children until they complete the age of 14 years. Since 1951, all-out efforts are being made to achieve the constitutional directive. The Constitution makers, though not unaware of the financial implications of such a directive, were serious about its implementation especially when Article 45 is read with Article 24 of the Constitution, under the 'Fundamental Rights' which states: "No child below the age of fourteen years shall be employed to work in any factory or mine or engaged in any other hazardous employment". The Constitution makers rightly believed that this is the age when a child should be studying in some school.

V. Five Year Plans and Human Resource Development

Soon after the passing of the Constitution in 1950, the Government of India set up the Planning Commission in March 1950, with a view to realizing the basic objectives of the Constitution which were set forth in the 'Directive Principles of State Policy'. Articles 38, 39, 42, 43,

44, 45, 46, 47 and 48 of Part IV of the Constitution dealing with the 'Directive Principles of State Policy' are directly relevant to the development of human resources. Among the Directive Principles, the position of eminence goes to Articles 38 and 39, reproduced below, which set the tone to the basic philosophy and programmes embodied in the Five Year Plans of India:

Article 38

"The State shall strive to promote the welfare of the people by securing and protecting as effectively as it may a social order in which justice, social, economic and political, shall inform all the institutions of the national life."

Article 39

"The State shall, in particular, direct its policy towards securing —

(a) that the citizens, men and women equally, have the right to an adequate means of livelihood;
(b) that the ownership and control of the material resources of the community are so distributed as best to subserve the common good;
(c) that the operation of the economic system does not result in the concentration of wealth and means of production to the common detriment;
(d) that there is equal pay for equal work for both men and women;
(e) that the health and strength of workers, men and women, and the tender age of children are not abused and that citizens are not forced by economic necessity to enter avocations unsuited to their age or strength;
(f) that childhood and youth are protected against exploitation and against moral and material abandonment."

In the context of planning and with special emphasis on human resource development, it would be useful to draw attention to three other Articles *viz*., 41, 45 and 46.

The Planning Commission, under its terms of reference as defined in the Government of India Resolution of March 1950, was asked to make an assessment of the material, capital and human resources of the country, including technical personnel and investigate the possibilities of augmenting such of these resources as are found to be deficient in relation to the nation's requirements; and formulate a plan for the most effective and balanced utilization of the country's resources. In chapter I of the First Five Year Plan, while discussing planning and its economic and social aspects, it was observed that the central objective of planning in India at the present stage is to initiate a process of development which will raise living standards and open out to the people new opportunities for a richer and more valid life. The problem of development of an under-

developed economy is one of utilizing more effectively the potential resources available to the community, and it is this which involves economic planning. It was pointed out that the economic condition of a country, at any given time, is a product of the broader social environment and economic planning has to be viewed as an integral part of a wider process aiming not merely at the development of resources in a narrow technical sense but at the development of human faculties and the building up of an institutional frame work adequate to the needs and aspirations of the people. It was further observed that an under-developed economy is characterized by the co-existence, in greater or lesser degree, of unutilized and under-utilized man-power on the one hand and of unexploited natural resources on the other. The elimination of poverty cannot obviously be achieved merely by redistributing existing wealth, nor can a programme aiming only at raising production remove existing inequalities. Referring to the determinants of economic development, the First Plan observed that economic development of an under-developed country cannot proceed far unless the community learns how to get from its resources of men and materials the larger output of commodities and services. The pace of economic development depends on a variety of factors which constitute the psychological and sociological setting within which the economy operates. A major element in the setting is the community's will to progress and its readiness to develop and adopt new and more efficient methods and processes of production. Basically, development involved securing higher productivity all round and this is a function of the degree of technological advance the community is able to make.

Referring to investment, income and economic development in India, the First Plan observed that development effort is something more than investment, defined in the technical sense of additions to capital equipment. When the levels of education and health are as low as they are in India today, measures designed to raise them — which might require only moderate amounts of capital equipment — would yield larger returns than many forms of investment in the narrower sense of the term. The potentialities in this direction are immense. The scope for raising agricultural productivity in the country by relatively small outlays of money on agricultural extension service is an instance in point. Technical education and training, together with slight improvements in methods of production, may have similarly the effect of increasing productivity substantially in small-scale industries.

The central object of planning, as defined in the First Plan, is to create conditions in which living standards are reasonably high and all citizens, men and women, have full and equal opportunity for growth and service. It was further observed that we have not only to build up a big production machine—though this is no doubt a necessary condi-

tion of development—we have at the same time to improve health, sanitation and education and create social conditions for vigorous cultural advances. Planning must mean co-ordinated development in all these fields. Fuller utilization of the idle manpower in the country must be a major objective, and every effort must be made to create opportunities for work in the rural areas through improvements in agriculture, development of cottage and small-scale industries and extensive programmes of public works, especially in the slack season, and by providing necessary equipment and other materials needed for improving labour productivity limits and the rate at which idle manpower can be absorbed. Rigidity of the occupational pattern is incompatible with rapid economic development. The First Plan, therefore, suggested that steps must be taken to ensure the fullest possible utilization, in furtherance of development programmes, of labour power now running to waste, and the long-run objective must be to encourage rather than to discourage the mobility of labour, geographical and occupational.

The First Plan also observed that the problem of unemployment among the educated middle classes in the urban areas is an instance of a failure of co-ordination between the system of education and the needs of the economic system.

The first two Five Year Plans emphasized the importance of developing human resources through various schemes. The 'Directive Principles' of the Constitution were given a more precise direction in December 1954, when Parliament adopted the "Socialist Pattern of Society", as the objectives of social and economic policy. It was made clear that the approach of planned development should be realized under the frame work of democratic socialism. Thus the Second Five Year Plan stated:

> "The task before an under developed country is not merely to get better results within the existing framework of economic and social institutions, but to mould and refashion these so that they contribute effectively to the realisation of wider and deeper social values."

These values or basic objectives have been summed up in the phrase: "Socialist Pattern of Society".

Thus the socialist pattern of society envisages maximization of production and reduction of economic and social disparities, and these two may be regarded as the corner-stone of the envisioned new pattern of society.

In a nutshell, it could be stated that the salient features of the socialist pattern of society in terms of a programme of action are as under:

(i) provision of basic minimum standard of life;
(ii) reduction of economic disparities;
(iii) prevention of concentration of economic power;
(iv) production of social gain and not for mere earning profit: and

(v) provision of opportunities for the full growth of an individual's personality.

The main emphasis, one could conclude, is on the development of human resources through the attainment of different types of objectives.

In the Third Five Year Plan, while discussing the objectives of planned development, it has been mentioned that the basic objective of India's development must necessarily be to provide the masses of the Indian people the opportunity to lead a good life. That indeed is the objective of all countries for their peoples, even though the good life may be defined in many ways. The Third Plan also mentioned that in a democracy: the pace of change depends to a large extent on increase in public understanding and in public response and on the growth of scientific outlook on the part of large numbers of people. Besides the economic and social objectives, the educational aspects of planning are, therefore, of great emphasis. These are emphasized through the wide sharing of responsibility for drawing up and carrying out plans and through the participation in the process of planning by organizations representing all sections of opinion as well as universities and educational institutions and voluntary social service agencies.

Referring to equal opportunity, the Third Five Year Plan document states that the first condition for securing equality of opportunity and achieving a national minimum is assurance of gainful employment for everyone who seeks work. The economy is able to achieve a rate of growth sufficient to provide work at an adequate level of remuneration to the entire labour force only when the industrial base has been greatly strengthened and education and other social services developed. The Third Plan also concedes that the development of education and other social services in advanced countries, has played a large part in ensuring greater equality of opportunity to different sections of the population and greater social mobility. Similarly, social services have also helped to bring about a measure of redistribution of income and provide the basic necessities and it is expected that in India too, the expansion of social services will exert a similar influence, specially through the extension of free and universal education at the primary level, provision of larger opportunities for vocational and higher education, grant of scholarships and other forms of aid and improvement in the conditions of health, sanitation, water supply and housing. Further, programmes for the welfare of Scheduled Tribes and Castes and other backward classes, for the provision of minimum amenities in the rural areas, for local development at the village level and for the housing of industrial workers and slum clearance and improvement, need to be viewed not merely as extensions of social services but as vital ingredients in the scheme of economic development. More equal opportunities to different sections of the community can be provided by combining social services like the

provision of scholarships and other facilities in the field of training and education with programmes of intensive economic development. Under the subject of economic and social integration, the Third Plan document has mentioned that planning is a continuous process and cannot be isolated for short periods. "Ultimately, it is the development of human being and the human personality that counts. Although planning involves material investment, even more important is the investment in man."

The Fourth Five Year Plan, 1969-74, states the philosophy of planned development of economy in a much clearer tone with emphasis on human resource development in the following terms:

"The objective of national planning in India is not only to raise the per capita income but also to ensure that the benefits are evenly distributed, that disparities in income and living are not widened but in fact narrowed, and that the process of economic development does not lead to social tensions endangering the fabric of the democratic society. In part these can be achieved by seeing that, in the implementation of the programmes, the weakest are looked after first and the benefits of development are made to flow by planned investment in the under-developed regions and among the more backward sections of the community. In part this will be the result of purposeful policy decisions effectively pursued. Fiscal and other policies should prevent concentration of wealth, check ostentatious consumption and promote savings. The programmes and policies of public financial and other institutions should ensure wider dispersal of benefits. Reforms in the educational system should help the growth of initiative and enterprise, make for horizontal and vertical mobility, open up wider opportunities for employment and enable the lowering of caste, class and regional barriers so that a purposeful change towards an egalitarian society can be brought about. In the last analysis, planned economic development should result in a more even distribution of benefits, a fuller life for an increasingly larger number of people, and the building up of a strong integrated democratic nation."

VI. Education and Training

Prior to independence, education did not receive the attention it deserved. The position did not change very much till the launching of the First Five Year Plan in April 1951. On the eve of the First Plan, the development of human resources was not even thought of.

Illustrative of the fact is that in 1946-47 out of the total population of about 40 million in the age-group 6-11, only 14.11 million i.e. 35% of the children in this age-group attended classes I-V. In classes VI-VIII, the enrolment was about 2 million forming only 9 per cent of the total number of 22 million children in the age-group 11-14. The number of

secondary schools was 5,297 and the enrolment in these schools was 0.87 million or 3.8% of the boys and girls in the age-group 14-17. There were 19 universities, 297 arts and science colleges with an enrolment of 0.21 million students and 140 professional technical colleges with an enrolment of 0.04 million students. Even after a century of State aided effort, only 17% of the people in the country had been made literate. The total expenditure on education in 1947 was 576.6 million or Rs 1.94 per head of population of which the Government's contribution was only Rs 0.69. The picture in the rural areas was worst.

Apart from the inadequacy of facilities, the system of education obtaining before independence had no national direction. First it was, by and large, mechanical emphasising memory work rather than independent thinking or problem solving. The schools were ill-equipped and teachers were poorly paid. The curricula had no relation either to individual or social needs. Wastage and stagnation was rampant. In the arts and science colleges, the methods of teaching were hardly conducive to the development of a critical and cultivated mind which is the hallmark of an educated individual. The facilities for research at the post-graduate level were meagre. Some reform had partly begun at the elementary stage without affecting the other stages with the result that this stage got isolated from the rest of the educational system with obvious hardship to the students and the teachers.

The development of human resources was recognized as one of the basic objectives of the Constitution and also of the economic and social plans initiated in the country since 1951. It was realized that education was the main instrument of change and that the development of human resources through education was more crucial and important than the development of physical resources which could be achieved through modernization of agriculture and rapid industrialization requiring adoption of a science-based technology, heavy capital formation and investment and provision of the essential infra-structure of transport, credit marketing and other institutions. The reason why human resources development is more important is because of the realization of the country's aspirations which involves changes in the knowledge, skills, interests and values of the people as a whole. This is basic to every programme of social and economic betterment. For instance, it has been assumed that there can be no hope of making the country self-sufficient in food unless the farmer himself is moved out of the age-long conservatism through a science-based education, becomes interested in experimentation, and is ready to adopt techniques that increase yields. The same is true of industry. The skilled manpower needed for the relevant research and its systematic application to agriculture, industry and other sectors of life can only come from a development of scientific and technological education. Similarly, economic growth is not merely a matter of

physical resources or of training skilled workers; it means the education of the whole population in new ways of life, thought and work. For a traditional society which has accepted the goal of modernization, high priority has to be given to human change on a grand scale.

The assessment carried out by the Planning Commission on the eve of the First Plan, indicated that considering the size of the population, the overall provision of educational facilities was very inadequate. Similarly, the literacy percentage of the population was 17.2 which was only a very rough measure of the huge task ahead in the field of adult education. Facilities for technical education required to be expanded considerably to meet the needs of the country adequately. The overall structure of the educational system was defective in many ways, one of which was that it was top heavy. Although the provision at the secondary stage was proportionate to that of the primary stage but at the university stage it was larger than the basic structure could profitably support. It was also revealed by the distribution of educational expenditure among the various stages. There were grave disparities between different States in the matter of provision of educational facilities. The expenditure on education compared to total revenues and population also varied in different States. Educational facilities were not properly distributed between urban and rural areas. Whereas about 83 per cent of the population lived in rural areas, the percentage of the total number of pupils in recognized primary, middle and high schools, who were studying in rural areas in 1949-50, was 60, 67 and 26 respectively. At the university stage, facilities were practically non-existent in rural areas. There was lack of balance between provision of facilities for different sections of society. Whereas women constituted nearly half the population, the girl pupils in the primary, middle and high school stages were 28, 18 and 13 per cent respectively of the total number of pupils studying in different stages. Though the various stages of the educational system were not clearly and rationally marked out, the duration and standards of the primary and secondary stages varied considerably in different States. Another disturbing feature of the situation was the large wastage in various forms at different stages of education. Of the total number of students entering schools in 1945-46, only 40 per cent reached Class IV and the expenditure on the remaining 60 per cent was largely wasted. The experiment of compulsion which was then regarded as the only remedy for improving the position had not made much progress. The absence of adequate facilities for technical and vocational education resulted in a much larger number of students going in for general education than was justified by the requirements of the country or the tastes and aptitudes of the people. The position in regard to percentage of untrained teachers was highly unsatisfactory; the percentage of untrained teachers in primary schools

was 41.4 and in secondary schools 46.4. There was dearth of women teachers. The scales of pay and conditions of service of teachers were generally very unsatisfactory and constituted a major cause of the low standards of teaching.

Summing up the position, the Planning Commission in their Report on the First Five Year Plan indicated the following lines of direction:

(1) Reorientation of the educational system and integration of its different stages and branches;

(2) expansion in various fields especially in those of basic and social education, remodelling of secondary education and technical and vocational education;

(3) consolidation of existing secondary and university education and devising a system of higher education suited to the needs of the rural areas;

(4) expansion of facilities for women's education especially in rural areas;

(5) training of teachers especially women teachers and teachers of basic schools and improvement in their pay scales and conditions of service; and

(6) helping backward States by giving preferential treatment to them in the matter of grants.

Since 1951-52 till now, there has been a systematic effort to reorganize the system of education and enrich its content so as to meet the needs of trained manpower, particularly in the context of the developing economy. The University Education Commission (1948), Secondary Education Commission (1952-53) and the Education Commission (1964-66) provided the guidelines for future development in different sectors of education. The Central Advisory Board of Education, the All India Council for Technical Education and other consultative bodies, which were set up from time to time, helped in the formulation of policies in the reconstruction of the educational system in the country. Mention may also be made of the setting up, during this period, of the University Grants Commission with the object of raising standards of teaching and research in the universities, of the establishment of the Institutes of Technology for teaching and research facilities of a high standard, of the establishment of the National Council of Educational Research and Training to undertake programmes of training and research in teacher education including in-service education, examination reforms, improvement of curricula, text books, educational and vocational guidance etc., and the setting up of a National Staff College for educational administrators and planners to organize short-term orientation and training programmes for educational administrators to carry out researches and studies in the field of educational administration and planning.

Ever since the initiation of the First Plan, there has been an increas-

ing emphasis on allocation of resources for educational development. The national income, the expenditure on education and the per capita expenditure and its growth during the first 20 years of planning is reflected in the following Table:

TABLE VII

National Income and Expenditure on Education

S. No.	*Year*	*National Income (Current Prices)* (in crores)	*Total Expenditure on Education (All sources)* (in crores)	*Per Capita Income* (in Rs.)	*Per Capita Expenditure on Education* (in Rs.)	*Total Expenditure on Edn. as %age of National Income*
1	2	3	4	5	6	7
1.	1950—51	9,530	114	266.5	3.2	1.2
2.	1955—56	9,980	190	255.0	4.8	1.9
3.	1960—61	14,140	344	306.3	7.8	2.4
4.	1965—66	19,990	600	426.1	12.1	3.0
5.	1970—71	31,569	1,000	577.0	18.2	3.1

The progress in terms of establishment of institutions and enrolment has been phenomenal as will be evident from the figures given in the Table below:

TABLE VIII

Progress of Education in India

S. No.	*Year*	*Total Number of Institutions*	*Total Enrolment* (in thousands)	*Total Number of Teachers* (in thousands)
1	2	3	4	5
1.	1946—47	157,192	13.573	704
2.	1950—51	286,860	25,542	818
3.	1955—56	366,641	33,923	1,116
4.	1960—61	472,655	47,964	1.508
5.	1965—66	727,262	70,555	2,135

The increase in the establishment of institutions. in the enrolment of students and appointment of teachers in the institutions during the last twenty years has been unprecedented and is unparalleled in the history of either developed or developing countries of the world.

Since one of the major programmes, accepted in the national reconstruction and development plans, has been the development of our human resources this implies that there can be no limit to the education to be provided. During the past two and a half decades, priority has been given, within the constraint of resources, to programmes aimed at raising the educational level of the average citizen. Such programmes are essential on grounds of social justice, for making democracy viable

and for improving the productivity of the average worker in agriculture and industry. One of the important objectives of human resource development is to equalize educational opportunities, enabling the backward or under-privileged classes and individuals to use education as a lever for the improvement of their condition. This is presumed to be one of the conditions for building up of an egalitarian and human society in which the exploitation of the weak will be minimized. The progress of enrolment at various stages of education, during the last 20 years and what is expected to be achieved by the end of the Fourth Plan is given in the following Table:

TABLE IX
Growth in Enrolments

Year	*Classes I-V*		*Classes VI-VIII*		*Classes IX-XI*		*University Stage*	
	Enrolment (in lakhs)	*% age to total Population in the age-group*	*Enrolment (in lakhs)*	*% age to total population in the age-group*	*Enrolment (in lakhs)*	*% age of total population in the age-group*	*Enrolment (in lakhs)*	*% age to total population*
1	2	3	4	5	6	7	8	9
1950—51	192.0	42.6	31.0	12.7	12.0	5.3	3.26	0.8
1955—56	252.0	52.8	43.0	16.5	19.0	7.4	5.75	1.3
1960—61	350.0	62.4	67.0	22.5	29.0	10.6	8.08	1.7
1965—66	505.0	76.7	103.0	30.8	50.0	16.2	13.31	2.4
*1970—71	592.5	80.3	133.9	34.1	71.6	20.4	21.49	3.7

*Figures are provisional

In terms of sheer numbers, the progress has been very remarkable.

For practical and administrative reasons, the programme of education for the age-group 6-14, visualized in the Constitution has been divided into two stages 6-11 and 11-14. If the entire age-group 6-14 is considered together, the position would be as shown in the following Table:

TABLE X
Provision of Schooling Facilities in the Age-group 6-14

Year	*Enrolment in Classes I-VIII (lakhs)*			*Percentage of Population in the age-group 6-14*		
	Boys	*Girls*	*Total*	*Boys*	*Girls*	*Total*
1	2	3	4	5	6	7
1950—51	163.6	59.1	222.7	45.9	17.5	32.1
1955—56	209.5	85.1	294.6	54.6	23.5	40.0
1960—61	282.0	124.3	406.3	65.4	30.6	48.5
1965—66	371.2	222.7	593.9	73.0	46.1	59.5
1970—71*	463.4	263.1	726.5	—	—	64.3

*Figures are provisional

During the years 1951-71, the number of children (age-group 6-14) at school has gone up from 22.3 million to 72.6 million, the proportion of the total population in the age-group rising from 32 to 64 per cent.

Development of the economy and the large increase in the number of secondary schools and in the number of students of the age-group 14-17 enrolled in them altered the character of the demands which secondary education is called upon to meet. New social groups are seeking education and are coming within its influence. Expansion brought into secondary schools a large range of abilities and attitudes. The developments which have taken place in the field of expansion of enrolment during 1951-71 given in the Table below:

TABLE XI

Provision of Schooling Facilities in the Age-group 14-17

Year	*Enrolment in Classes IX-X-XI (Figures in lakhs)*			*Percentage of enrolment to the age-group 14-17*		
	Boys	*Girls*	*Total*	*Boys*	*Girls*	*Total*
1	2	3	4	5	6	7
1950—51	10.2	2.0	12.2	8.7	1.8	5.3
1955—56	15.8	3.0	18.8	12.8	2.6	7.8
1960—61	23.9	5.2	29.1	18.4	4.2	11.5
1965—66	35.7	9.9	45.6	23.7	6.9	15.6
*1970—71	—	—	71.7	—	—	20.4

*Figures are provisional

While the enrolment has increased from 12.2 lakhs in 1950-51 to about 72 lakhs in 1970-71, the percentage of children in the age-group 14-17 attending schools has grown from 5.3 to 20.4 during the same period.

The number of vocational and technical institutions at the secondary level of education has been increasing and also the enrolment in such institutions. This is shown in the Table below:

TABLE XII

Growth of Vocational Secondary Education

Year	*Number of Institutions*	*Enrolment*
1949—50	2,028	162,532
1950—51	2,339	190,568
1960—61	4,145	424,927

The bulk of students in vocational courses are in Teacher Training Schools. Their number in 1960-61 was 123,612. The rest is distributed in commerce, agriculture, engineering, forestry, medicine, industrial arts and crafts and veterinary science courses.

Literacy is an important indicator of stock of human capital. The distribution of the total population in India between literates and

illiterates and among males and females, according to the 1951 and 1971 Census, is shown in the Table below:

TABLE XIII

Literacy* in India — 1951 and 1971

	1951 (000's)**			1971 (000 's)		
	Males	*Females*	*All Persons*	*Males*	*Females*	*All Persons*
1	2	3	4	5	6	7
Literate	45,610	13,651	59,261	111,778	48,731	160,509
	(24.9)	(7.9)	(16.6)	(39.5)	(18.5)	(29.4)
Illiterate	137,723	159,895	297,618	171,278	215,169	386,447
	(75.1)	(92.1)	(83.4)	(60.5)	(81.5)	(70.6)
Total	185,528	175,566	361,089	283,056	263,900	546,956

1. Excludes Jammu and Kashmir, Goa, Daman and Diu, Pondicherry, (Karaikal, Mahe and Yaman), NEFA, Major portion of Nagaland and Dadra and Nagar Haveli.

2. Figures within parenthesis indicate percentages.

*The test for literacy, according to Census definition, was satisfied "if a person could, with understanding, both read and write. The test for reading was ability to read any simple letter either in print or in manuscript. If the person could read one of the examples in the enumerators' handbook with facility, he was taken to have passed the test for reading. The test for writing was ability to write a simple letter. To qualify for literacy, a person was not required to pass any standard examination. On the other hand, literacy was recognised as something a man still possessed and actively put to use and it was in this general practical sense that it was uniformly applied. The results are thus comparable from area to area. If a person could both read and write and had also passed a written examination or examinations as proof of an educational standard attained, the highest examination passed was to be recorded." Census of India, 1961, Vol. I, page XIV.

***The total population figures are in absolute number, whereas the figures for literate and illiterate are estimates on the basis the figures obtained in the Census Reports, which were based on a 10% sample of the total population. In the 1971 Census, detailed literacy census was conducted on 10% sample.*

Over a period of twenty years, while the number of literates increased from 59 million to 161 million, the percentage to total population improved from about 17 to 29. At the same time, the number of illiterates also increased from 298 million to 386 million. In 1971, while the overall national average of literacy percentage was 29, it was only about 19 in the case of women The number of illiterates, during 1951-71, increased by 88 million and of these 55 million were women. The increase in total population, during this period, was 186 million. Thus in a way, the unprecedented increase in population during the two decades, among others, has been responsible for the slow rate of growth of literacy.

The distribution of literate population in rural and urban areas, among males and females, according to the 1951 and 1971 Census, is shown in the Table below:

TABLE XIV

Literate Population — Urban and Rural — 1951 and 1971

(Figures in millions)

	Literate Population			*Literate as % of total Population*		
	Males	*Females*	*All Persons*	*Males*	*Females*	*All Persons*
1	2	3	4	5	6	7
			1951*			
Total	45.610	13.651	59.261	24.9	7.9	16.6
Rural	30.450	7.291	37.741	19.0	4.9	11.8
Urban	15.160	6.360	21.520	45.0	22.3	34.6
			1971			
Total	111.911	48.700	160.611	39.51	18.44	29.34
Rural	75.889	27.631	103.520	33.77	12.92	23.60
Urban	36.021	21.068	57.089	61.55	41.91	52.48

*The total population figures are in absolute numbers, whereas the figures for the rural and urban areas are estimates on the basis the figures obtained in the Census Report, which were based on a 10% sample of the total population. In 1971 Census, detailed literacy census was conducted on 10% sample basis.

The percentage of literates in rural areas has nearly doubled during the two decades.

The analysis of the 1971 Census data reveals that higher the age-group, larger is the extent of illiteracy. This is clear from the following Table:

TABLE XV

Literacy by Age-group — 1971 (Census)

(Figures in millions)

Age group	*Total Population*	*Total No. of Literates*	*Percentage to total Population*
0—4 ..	78.3	18.7	23.9
5—9 ..	82.1	33.6	40.9
10—14 .	67.6	24.1	35.7
15—19 ..	47.5	18.9	39.8
20—24 ..	43.1	26.0	60.3
25—34 ..	76.6	12.4	16.2
35 — ..	149.3	24.2	16.2
Age not stated ..	0.9	0.2	22.2
All ages ..	545.5	158.1	29.0

Note: Estimates from 1% sample.

The percentage of illiterates is higher in the age-group above 15-19. The population in the age-group 15-34, which roughly represents the youth was about 167 million or 36 per cent of the total population and amongst them only 57 million or about 34 per cent were literate.

For a study of the qualitative growth of education, it would be useful to analyse the composition of population by levels of education. This is shown in the Table XVI. (p. 149)

The increase in literate population between 1951-1971 was 98.8 million and the number of literates who were matriculates and above increased by 17.5 million. Further, within the literate group while the proportion of literates below matriculation was less in 1951 when compared to 1971, their number has increased by 73.1 million. A redeeming feature is that the percentage of persons without educational level of literate population has come down from 85 in 1951 to 37 in 1971.

An adequate supply of skilled manpower is a condition precedent for the success of industrialization. The development of technical education has been one of the major achievements of the post-independence period. The creation of the All India Council for Technical Education in 1944 and the Report of the Scientific Manpower Committee in 1947 had a far-reaching influence on this development. A further impetus was given by the Engineering Personnel Committee (1956) and the Committee for Post-Graduate Engineering Education and Research. The development of technical education, as it relates to industry, was promoted through the Apprenticeship Act (1961), setting up of Industrial Training Institutes (I.T.Is) and Junior Technical Schools, at the skilled worker level, and the expansion of Polytechnics at the technician level. This system has provided the necessary basis to devise further programme of technical education and vocational training. The progress of technical education in terms of number of institutions at the degree and diploma level courses and the intake and out-turn since 1950-51 is indicated in the Table below:

TABLE XVII

Progress of Technical Education in India 1950-51 to 1970-1971

Year	*Degree Courses*				*Diploma Courses*			
	No. of Institutions	*Intake*		*Out-turn*	*No. of Institutions*	*Intake*		*Out-turn*
		Sanctioned	*Actual*			*Sanctioned*	*Actual*	
1	2	3	4	5	6	7	8	9
1950—51	49	4,119	4,119	2,198	86	5,903	5,903	2,478
1955—56	65	5,888	5,888	4,035	114	10,484	10,484	4,499
1960—61	102	13,824	13,692	5,703	195	25,801	23,736	7,969
1965—66	133	24.695	23,315	10,282	274	48,084	48,984	17,699
1970—71	138	21,108	—	17,768	283	42,823	—	22,276

During the last twenty years, the expansion of Technical Education has been phenomenal. Due to a variety of reasons, the sanctioned intake in 1970-71 was, however, reduced both in degree and diploma courses.

TABLE XVI

Distribution of Population by levels of Education 1951, 1961 and 1971

(Figures in thousands)

Level of Education	1951			1961			1971		
	Males	*Females*	*All persons*	*Males*	*Females*	*All persons*	*Males*	*Females*	*All persons*
Literates (without educational level)	38,125 (83.5)	12,094 (88.6)	50,219 (84.7)	48,287 (62.0)	18,146 (65.8)	66,433 (63.0)	38,920 (35.4)	19,445 (40.3)	58,365 (36.9)
Below Matric	4,220 (9.3)	1,022 (7.5)	5,242 (8.8)	22,700 (29.1)	8,158 (29.6)	30,858 (29.2)	54,199 (49.3)	24,204 (50.2)	78,403 (49.6)
Matriculates and above	3,265 (7.2)	535 (3.9)	3,800 (6.4)	6,954 (8.9)	1,275 (4.6)	8,229 (7.8)	16,738 (15.3)	4,577 (9.5)	21,315 (13.5)
Total Literates	45,610	13,651	59,261	77,941	27,579	1,05,520	1,09,857	48,226	158,083
Total Population	183,334 (100.0)	173,545 (100.0)	356,879 (100.0)	226,146 (100.0)	212,791 (100.0)	438,937 (100.0)	282,423 (100.0)	263,073 (100.0)	545,496 (100.0)

Figures within brackets indicate percentages.

The estimated stock of engineering personnel by branches of engineering since 1955 is given in the following Table:

TABLE XVIII

Estimated Stock of Engineers by Branches of Engineering 1955 to 1970

(Figures in hundreds)

Speciality	*Stock of Engineering Personnel at the end of*				
	1955	1960	1965	1968	1970
Degree					
Civil	109	195	298	393	552
Mechanical	72	125	234	346	575
Electrical	62	102	183	279	489
Tele-communication	5	9	19	29	50
Metal	11	19	28	40	68
Mining	5	9	19	25	33
Chemical	27	40	56	77	129
Others	55	81	118	147	194
Total	346	580	955	1,336	2,090
Diploma					
Civil	211	371	594	775	944
Mechanical	85	141	322	568	878
Electrical	79	125	265	431	625
Tele-communication	3	6	11	16	24
Metal	3	4	4	6	12
Mining	6	10	21	26	28
Chemical	4	4	4	4	9
Others	55	90	117	158	241
Total	446	751	1,338	1,984	2,761
Total					
Civil	320	566	892	1,168	1,496
Mechanical	157	266	556	914	1,453
Electrical	141	227	448	710	1,114
Tele-communication	8	44	30	45	74
Metal	14	15	32	46	80
Mining	11	19	40	51	61
Chemical	31	23	60	81	138
Others	110	171	235	305	435
Total	792	1,331	2,293	3,320	4,851

This Table indicates that the stock of engineers increased from 79,200 at the end of 1955 to 485,100 at the end of 1970. It is expected to be 584,300 at the end of 1978.

Another area in which there has been very good progress is that of the training of craftsmen which prepares skilled workers for the middle level of jobs. The Table below indicates the number of Industrial Training Institutes (I.T.I.) set up in the country since 1955-56, the number of seats provided in these institutions and the out-turn.

TABLE XIX

Progress of Craftsmen Training

	1955-56	1960-61	1965-66	1968-69
1. **Craftsmen Training**				
(i) No. of I.T.I.'s	59	163	357	356
(ii) No. of seats introduced				
(a) Engg. Trades	8,622	39,797	108,196	139,644
(b) Non-Engg. Trades	1,912	2,885	5,426	7,144
Total	10,534	42,685	113,622	146,788
(iii) Out-turn (cumulative)				
(a) Engg. Trades	27,175	75,031	246,000	399,893
(b) Non-Engg. Trades	10,917	20,161	32,480	42,827
2. **Part-time Classes Scheme**				
(i) No. of Centres	—	15	34	35
(ii) Total seats introduced	—	1,537	4,280	4,837
3. **Craftsmen Instructors**				
(i) No. of Centres	1	3	7	7
(ii) Seating Capacity	140	686	2,380	2,428
(iii) Out-turn				
(a) Engg. Trades	1,126	3,071	9,556	13,664
(b) Non-Engg. Trades	349	993	1,667	2,045
Total	1,475	4,046	11,223	15,709

The number of institutions increased from 59 in 1955-56 to 356 in 1969 and the total number of seats, both in engineering and non-engineering trades, during this period, increased from 10,534 to 146,788.

In addition to the Industrial Training Institutes, facilities are provided to workers in part-time classes. There were 35 such centres in 1969 and the total number of seats provided in these part-time courses were 4,837. In view of the large scale expansion of the scheme of craftsmen training, there was some development in the training of craftsmen instructors. The number of their training centres was 7 at the end of 1969 and the out-turn from these centres in the same year was 15,709.

One good measure indicating the growth of human resource development which is universally recognized is the number of teachers of primary,

middle and secondary schools and universities and colleges. The growth in number of teachers during 1950-51 and 1970-71 is given in the Table below:

TABLE XX

Growth in the Number of Teachers

Year	*Primary Schools*	*Middle Schools*	*High/Higher Secondary Schools*	*Universities and Colleges*
1950—51	537,918	85,496	126,504	21,065
1955—56	691,249	148,394	189,794	37,865
1960—61	741,515	345,228	296,305	62,229
1965—66	944,377	527,754	479,060	128,364
1970—71*	1111,819	626,495	587,433	N.A.

*Provisional

This indicates that there has been tremendous addition to the stock of teachers during the 20 years and this trend is continuing.

The out-put of persons, passing B.A., B.Sc., M.A., M.Sc., Ph.D. and professional courses has also been increasing. This is shown in Table XXI. (p. 153)

The category-wise stock of scientists, at the end of years 1955. 1960, 1965 and 1970, is indicated in the Table below:

TABLE XXII

Growth Among Scientists

Category	*At the end of the year*			
	1955	1960	1965	1970
1. **Graduates in**				
General Science	102,900	165,600	261,500	420,000
Agricultural Science	10,100	15,700	30,600	47,200*
Veterinary Science	1,400	4,500	8,800	13,000
2. **Post-Graduates in**				
Mathematics	6,500	10,700	17,800	28,200
Statistics	600	1,500	3,400	5,200
Physics	4,800	7,500	12,800	20,800
Chemistry	7,000	10.000	18,000	29,100
Geo-Sciences	1,000	2,000	4,200	6,600
Zoology	2,100	3,500	6,500	11,100
Botany	2,100	3,700	6,600	11,400
Agriculture	2,000	3.700	7,700	13,500*
Other Sciences	200	400	600	1,300
Total	140,700	227,800	378,500	607,400

*The Department of Agriculture have estimated the stock of graduates to be 41,000 and post-graduates to be 10,000 in 1968 in their report "Technical Manpower for Indian Agriculture", 1969.

The total stock of scientists has increased from 1,40,700 in 1955 to 6,07,000 in 1970.

TABLE XXI

Out-turn — General and Professional Education

Year	B.A./Bsc. (Pass and Hons.)			M.A./M.Sc.			Doctorate (including Professional and other subjects)			Professional Degree and equivalent Diploma only		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1950—51	27,357	4,881	32,238	6,262	876	7,138	136	10	146	17,892	1,553	19,445
1955—56	44,041	9,948	53,989	9,603	2,166	11,769	321	29	350	31,951	3,821	35,772
1960—61	70,657	22,295	92,952	18,570	5,115	23,685	959	283	1,242	53,045	7,179	60,224
1965—66	89,865	38,589	128,454	25,959	9.628	35,587	808	99	907	67,546	10,721	78,267

The out-turn has been increasing in all the types of courses.

There has been increasing emphasis on the development of science education in the country. This is indicated by the fact that steadily the enrolment in science classes at the university stage, including U.P. Intermediate Board, has been steadily increasing. This is shown in the following Table:

TABLE XXIII

Growth of Science at the University Stage

Year	*Enrolment in Science Courses*	*Total Enrolment*	*Percentage*
1961—62	336,722	1,155,380	29.1
1962—63	390,174	1,272,666	30.6
1963—64	435,925	1,384,697	31.5
1964—65	478,702	1,528,227	31.3
1965—66	565,254	1,728,773	32.7
1966—67	654,899	1,949,012	33.6
1967—68	737,858	2,218,972	33.3
1968—69	802,369	2,473,264	32.4

The out-turn of scientists at different levels during the period 1951 to 1965 is shown in the following Table:

TABLE XXIV

Year	*B.Sc.*	*M.Sc.*	*Ph.D.*	*Total*
1951	26,157	4,726	376	31,259
1965	38,234	7,290	519	46,043

The Table below indicates the scientific and technical personnel according to 1961 Census.

TABLE XXV

Scientific and Technical Personnel

Category	1961		
	Persons	*Males*	*Females*
1. Engineering and Technical Personnel	132,932	132,327	605
2. Scientific Personnel	42,207	37,921	4,286
3. Health	333,278	260,664	72,614
4. Agricultural & Allied Personnel	34,529	32,450	2,079
5. Teaching Personnel	1,581,704	1,264,697	3,17,007
6. Managers and Administrators and Social Scientists			
(a) Managers	779,824	748,005	31,819
(b) Administrators	714,247	705,030	9,217
(c) Social Scientists	96,270	88,060	8,210
Total	3,714,991	3,269,154	445,837

Note: Excludes personnel from among a population of 297,853 persons (males 1,47,000, females 1,50,753) of NEFA for whom an abridged family schedule was canvassed of General All India Individual Slip and Household Schedule.

The education of girls and women in our country has acquired a new importance after the attainment of independence. The percentage of women to the total population is about 48 (264 million out of 548 million). In 1950-51, the proportion of boys and girls at the school stage was 80 and 20 respectively and this was 69 and 31 in 1970-71. Although women's education has made some advance, the present position at various stages is still far from satisfactory as will be clear from the Table below:

TABLE XXVI

Proportion of Boys and Girls at Various Stages

Year	*Classes I-V*		*Classes VI-VIII*		*Classes IX-XI*		*University Stage*	
	Boys	*Girls*	*Boys*	*Girls*	*Boys*	*Girls*	*Boys*	*Girls*
1950—51	71.8	28.2	81.9	18.1	86.1	13.9	88.9	11.1
1955—56	69.5	30.5	79.4	20.6	82.7	17.3	86.8	13.2
1960—61	67.5	32.5	74.0	26.0	81.2	19.8	83.1	16.9
1965—66	63.8	36.2	73.0	27.0	76.8	23.2	79.0	21.0
1970—71	62.3	37.7	70.3	29.7	74.0	26.0	76.0*	24.0*

*Figures are provisional.

The position, however, varies from State to State.

The total strength of the trained teachers and their percentage is given in the Table below:

TABLE XXVII

Trained Teachers and their Percentage

(In lakhs)

Year	*Teachers*	*Trained Teachers*	*Untrained Teachers*	*%age Trained*
1950—51	7.50	4.30	3.20	57
1955—56	10.29	6.25	4.04	60
1960—61	13.78	8.92	4.86	64
1965—66	20.00	14.00	6.00	72
1970—71	22.99	17.24	5.75	75

The percentage of trained teachers increased from 57 in 1950-51 to 75 in 1970-71. The growth in the number of training schools and colleges is shown in the Table below:

TABLE XXVIII

Number of Teachers' Training Institutions

Year	*Teachers' Training Schools*	*Teachers' Training Colleges*
1950—51	782	53
1955—56	930	107
1960—61	1,138	478
1965—66	601	1,272
1971—72*	357	1139

*Figures are provisional

A good system of scholarships serves two purposes: it supports excellence and it equalizes opportunities. For a large majority of our children, the kind and amount of education which they get depend not on their own abilities but on the economic status of their family. Realizing the need for a large scholarship programme, the Central and State Governments have been providing outlays for scholarships programmes. An idea of the rise in total expenditure on education and scholarships from all sources and the expenditure, which is incurred by the Government on scholarships, stipends and other concessions can be had from the Table below:

TABLE XXIX

Expenditure on Education and Scholarships

(Rs. in crores)

Year	*Expenditure from all sources on*		*Expenditure from Govt. sources on*		*3 as %age of 2*	*5 as %age of 4*
	Education	*Scholarships*	*Education*	*Scholarships*		
1	2	3	4	5	6	7
1950—51	114	3.45	65	2.75	3.0	4.2
1955--56	190	8.22	117	7.13	4.3	6.0
1960—61	344	20.08	234	17.84	5.8	7.6
1965—66	622	38.25	—	—	6.1	—
1970—71*	1,000	—	—	--	—	—

*Estimated

VII—Conclusion

This brief review highlights the deep commitment of the founding fathers of the Constitution to the development of human resources; this is clearly evident from the number of articles devoted to this subject in various chapters of the Constitution. The development plans, initiated soon after the adoption of the Constitution in 1950 had the ultimate objective of improving the quality of human resources through the fuller utilization of existing manpower— physical and material resources. This is again reflected in the investment in man — a high priority item in the development plans. The planners have emphasized that planned economic and social development should result in a fuller life of an increasingly larger number of people.

Education and training are, among others, the major instruments for improving the quality of human resources. In this field there have been phenomenal developments. One index is the percentage of expenditure incurred on education and training to the national income; this increased from 1.2 in 1950-51 to 3.1 in 1970-71. If the expenditure on other informal types of education and training is also taken into

consideration, the percentage is likely to be about 4 which, for a country like India, is not a mean figure. The number of literates, as a result of increased educational facilities and intensive literacy programmes, increased from 59 million in 1951 to 160 million in 1971. The total enrolment in various kinds of institutions rose from 13 million in 1951 to 82 million in 1971. What is important is that the enrolment in elementary classes, corresponding to the Constitutional Directive of provision of schooling facilities for children upto the age of 14, increased from 22 million in 1950-51 to 73 million in 1970-71, more than threefold increase. The percentage of pupils at second level (Classes IX-XI) in the proportion to of the estimated population in the corresponding age-group 14-17 in 1950-51 was 5.3 and it increased to 20.4 in 1970-71. The percentage of population in the age group 17-23, attending post-secondary institutions, of various types, increased from 0.3 in 1950-51 to 3.7 in 1970-71. The percentage of enrolment in science courses to the total enrolment at the university stage increased from 29.1 in 1961-62 to 32.4 in 1968-69. The output of post-graduates in arts and science in 1950-51 was 7,138 and increased to 35,587 in 1965-66 and of doctorates, during the same period was 146 and 907 respectively. Pursuit and promotion of talent has been the cardinal policy of the Government which is evident from the increased allocation of resources for scholarships. The number of teachers, at the first and second levels of education per 10,000 population in 1951 was 21 and it increased to 42 in 1971. The quality of teachers has also improved; as against 57 per cent trained teachers in 1951, the percentage increased to 75 in 1970-71. The number of engineering personnel per 10,000 population in 1960 was 3 and in 1971 it was 9. The number of scientists per 10,000 population in 1965-66 was about 3.5 and their number in 1970-71 increased to 10 which again indicates about three-fold increase.

All this indicates that, in spite of the unprecedented growth in population during the post-independence period, about 52 per cent increase between 1951-71, the country has taken rapid strides in the development of human resources and improvement in its quality. The criteria laid down as the indicators of human resources development, on an international basis, have been fulfilled to a great extent. This by itself is going to have an impact on a well regulated growth in the population during the next twenty years with all its ramification on economic development. Whatever may have been the imperfections in the planning for human resources development during the first 20 years of planning — these are bound to be in any system — one thing is clear that this period has witnessed the steady and solid growth of various institutions, and the building up of an infra-structure which will give a real base for developing human resources on proper lines during the future Plans.

What will have to be thought out and planned carefully is the further diversification of educational and training programmes, both in formal and informal types of institutions — more so in informal types — which will go a long way in the proper utilization of the vast human resources in appropriate fields to achieve the social and economic goals which the country sets out for itself in the years to come.

CHAPTER V

CO-OPERATION AND COMMUNITY DEVELOPMENT

In the current phase of economic development in India, with the emphasis given to the spread of high yielding varieties and the application of new technologies in agriculture, greater attention is being devoted to the establishment of higher level institutions for credit and marketing and to individual incentives than to the strengthening of grass-root institutions at the level of the people. This may appear to run counter to the major policy assumptions which, until recently, exerted a powerful influence on India's Five Year Plans. These looked upon co-operation and community development, along with growth in agricultural production, as the main foundation of the effort to transform social and economic life, specially in the rural areas. As was stated in the Second Five Year Plan (1956-61), "In a country whose economic structure has its roots in the village, co-operation is something more than a series of activities organised on co-operative lines; basically, its purpose is to evolve a system of co-operative community organisation which touches upon all aspects of life."

If recent developments and others along the same lines which may follow in the coming years are seen as means to meet new or expanding needs, the foundations could be correspondingly strengthened and continuity of growth assured.

The first co-operative society in the country came into existence in 1891 through voluntary local initiative in a village in the Punjab. The second society which served 22 villages came into being in 1895. Since the Deccan Riots Commission of 1875, the Famine Commission of 1880, the Land Improvements Loans Act of 1883 and the Agriculturists Loans Act of 1884, the need was being increasingly felt for some way of redeeming the cultivator from the clutches of money-lenders, for making finance available on easy terms and improving the condition of the peasantry. In this movement of ideas, Justice M. G. Ranade, Sir William Wedderburn and Sir Frederick Nicholson are among those to be remembered. At the turn of the century, persons of experience and insight realized that Indian agriculture was static, indebtedness was increasing, usury was rampant and that, in the midst of land grabbing by money-lenders, thriftlessness on the part of farmers and growing indebtedness, no real progress was possible. The outcome of this

concern was the enactment of the Co-operative Credit Societies Act, 1904, which established the first legal framework for the co-operative movement in India. However, it was not until the mid-fifties, following the report of the Committee of Direction of the All-India Rural Credit Survey and the Second Five Year Plan, that co-operation came to be regarded as an integral and truly vital part of the scheme of national planning.

The roots of community development also go back over many years. There was deep anxiety about the problems of poverty in India in Dadabhai Naoroji's famous paper of 1876. The period between the First and the Second World Wars witnessed experiments of real significance in several parts of India, notably under the influence of Rabindranath Tagore and Leonard Elmhirst at Sriniketan in West Bengal, D. Spencer Hatch at Martandam in Kerala, F. L. Brayne in the district of Gurgaon in Haryana, and V. T. Krishnamachari in the district of Baroda in Gujarat. In the thirties, Mahatma Gandhi did much pioneering work at Sevagram; week after week, he drove home the lessons of self-help and self-reliance, the need for reconstructing villages and for putting the idle time and energy of the people to constructive use. During the period immediately following the Second World War, the *Firka* development scheme in Madras, the *Sarvodaya* scheme in Bombay, and the Pilot Development Project at Etawah in Uttar Pradesh under the guidance of Albert Mayer, prepared the way for the acceptance of rural extension as the agency and of community development as the method for re-building the social and economic life of India's villages as part of the approach of planned development.

Thus, even though there are important antecedents in other countries upon which they drew, both co-operation and community development were in essence the products of that movement for resurgence which saw the fruition of India's struggle for national freedom. The forms in which these ideas have been expressed since the early fifties, their role in the country's life, the concrete problems which they have thrown up, and their limitations and possibilities in the future, are associated closely with the phase of national planning which was initiated by Jawaharlal Nehru. Since the mid-sixties, with a variety of political, economic and social problems confronting the country, some pragmatic approaches have been developed without being sufficiently integrated into a broad pattern of policy for co-operative action and for development at the level of the community. In this sense, co-operation and community development may be said to be currently in a period of transition. In this chapter, we shall concentrate in the main on the more basic considerations which have guided public policy over the greater part of the past two decades and refer more briefly to the more recent institutional developments and to their probable significance in the future.

A. CO-OPERATION

I. Scope

In defining the scope of co-operation and, therefore, of the co-operative sector in the national economy, the following were the principal considerations and assumptions:

(i) In agriculture, industry and other spheres, the vast majority of operating units are small and individually weak and are constantly exposed to hazards and even exploitation. In effecting reforms in the land system and creating wider opportunities, the number of units which function in a decentralized and almost atomistic manner tends to increase.

(ii) Through co-operation, it is possible to combine freedom and opportunity for the small man with benefits of large-scale management and organization and, at the same time, to secure goodwill and support from the community. The co-operative form of organization has advantages not equally shared by private enterprise or State ownership and, in particular, it can draw both upon incentives which are social and incentives which are individual.

(iii) Economic development and social change are equally important elements in the reconstruction of India's social and economic structure. Co-operation is one of the principal means for bringing about changes of a fundamental nature within the economy and in the social organization associated with it.

(iv) At the level of the village, co-operation implies the development of land and other resources and of various services in the common interest of the village as a whole as well as a continuing obligation on the part of the village community towards all its members. For this reason, as part of a larger co-operative rural economy, the aim of policy should be to develop the village as the primary unit of organization in agriculture and in many other economic and social activities which bear closely on the welfare of the rural population.

(v) As an organizing principle, co-operation is specially appropriate in spheres of activity in which the primary groups are relatively small and homogeneous and, at the same time, need the support of effective federal structures at higher levels.

It was because of these considerations that the Second and Third Five Year Plans presented co-operation as the principal basis of organization in several branches of economic life, notably, in agriculture, small

industry, processing, marketing, distribution, supplies, rural electrification, housing and provision of essential amenities for local communities. Even in medium and large-scale industries and in transport, an increasing range of functions can be undertaken on co-operative lines. Indeed, in association with a growing public sector and a private sector which keeps in view the interest of the community equally with its own viability, the influence of co-operation should extend far beyond the particular activities which are organized along co-operative lines and should impart to the social structure and the national economy a measure of balance, direction and a sense of values.

It was believed that in the initial stages of development the largest applications of the principle of co-operation would be in relation to the rural economy, but there were also important areas of urban, industrial and tertiary activities in which co-operation could acquire a growing share. As the process of social and economic change gathered force, co-operation would have to meet new and complex demands, and diverse forms of co-operative organizations would continue to take shape to meet these needs. It was, therefore, important that in all aspects co-operation should grow as a movement free from rigidity, regulation and hierarchy to the greatest extent possible, should draw strength from the people, and should always be open to experiment and innovation. In terms of organization, the principle and spirit of co-operation have to be continually preserved against fixed concepts, administrative super-impositions and excessive dependence on Government, on financial agencies and on civic and political institutions outside the main co-operative system.

As we shall see, these formulations did not perhaps reckon sufficiently with the interaction between the institutions of co-operation and the processes of economic growth. Where economic growth proceeds in the main through private effort, whether undertaken by organizations or individuals, co-operative institutions could find themselves on the defensive. They could become inadequate in relation to a wide range of new needs. They could also develop internal tensions between the strong and the weak and often tend to favour the former. Co-operative institutions might be influenced no less than other institutions by the desire of individuals and groups for greater power and influence. Finally, the problem of efficiency remains a crucial one for all forms of organization, and notably for those in which authority tends to be derived from a larger body of constituents and is, therefore, inevitably diffused. Financial weakness and dependence on outside resources also reduce effective autonomy. These are among the aspects which have come into greater prominence in recent years and are already the subject of intensive debate within and outside the co-operative movement.

II. Review of Developments

Although a few co-operative societies were formed on the initiative of district officers in the early years of the century, it was soon apparent that no real advance could take place without special legislation. A committee with Sir Edward Law as chairman (1901) reviewed the experience of co-operation then available and came to the conclusion that co-operative societies were worthy of every encouragement and of prolonged trial. The committee's recommendations led to the passing of the Co-operative Credit Societies Act of 1904. Under this legislation, co-operative societies were classified into two main groups, rural and urban. While leaving the choice free in respect of urban societies, unlimited liability was proposed as the general rule for rural societies. At this stage, consideration was not given to the question of building up the higher levels in the co-operative structure.

Between 1906 and 1912, the number of co-operative societies rose from 843 to 8,177, the number of members from 90,844 to 403,318 and the amount of working capital from about Rs. 2.4 million to Rs. 33.6 million. A new Co-operative Societies Act, which replaced the legislation of 1904, was passed in 1912. The distinction between rural and urban societies was given up and in its place societies were divided according to as the liability of members was limited or unlimited, whether their purposes related to credit or non-credit activities, and whatever the level in the structure at which they operated. A number of other improvements were also made. In 1914, the position was carefully reviewed by a committee presided over by Sir Edward Maclagan. The Maclagan Committee, whose report is a document of great importance in the development of co-operation in India, devoted its main attention to agricultural credit societies.

In 1921, with the passing of the Government of India Act, which introduced a system of dyarchy in the provinces, co-operation became a 'transferred' subject. By the early thirties, several provinces as well as some of the progressive Princely States had either introduced new co-operative legislation or adapted Central legislation to their requirements. The Royal Commission on Agriculture, which was set up in 1927 with Lord Linlithgow as chairman, also stressed the important role of co-operation, observing that, if co-operation failed, there would fail the last hope of rural India.

The economic depression of 1929-30 caused a serious setback to the co-operative movement, overdues accumulated, recoveries became extremely difficult and many societies and even Central banks came to grief. In several provinces, committees were appointed to recommend measures for the rehabilitation of the co-operative movement. The problem of rural indebtedness and of legislation to protect farmers against

money-lenders came to the fore as an urgent political and economic issue. This was largely due to the depression and the fall in the prices of primary agricultural products. Opinion gained ground that the co-operative movement should be strengthened to the utmost extent as a means of rural uplift. In the late forties, the role of co-operation and the lines along which the co-operative movement should develop were considered by a number of committees and in other forums, including specially the Government of India's Policy Committee on Agriculture, Forestry and Fisheries (1944), the Agricultural Finance Sub-Committee of the Reserve Bank of India (1945), the Co-operative Planning Committee (1945), the Rayalseema Co-operative Enquiry Committee (1945-1946), the Economic Programme Committee of the Indian National Congress (1948), the Rural Banking Enquiry Committee (1949-50) and the Fifteenth Conference of Registrars of Co-operative Societies (1947).

When the Reserve Bank of India was established in 1935, a special responsibility was placed upon it for studying the problems of agricultural credit and extending financial assistance to co-operative institutions. From this date, the Reserve Bank of India came to occupy a central position in the working of the co-operative movement. However, it could not do much during the forties and in the immediate post-war period. The turning point came in 1951 when the Reserve Bank of India convened an informal conference of co-operators, economists and Registrars of Co-operative Societies to help and define the measures needed to enable the Bank to assist co-operative institutions. The conference recommended that, as the factual information available was sparse, a rural credit survey should be undertaken and the nature of credit requirements studied thoroughly. This led to the appointment in August 1951, for the Rural Credit Survey, of a Committee of Direction which included A. D. Gorwala and D. R. Gadgil among its members.

The Rural Credit Survey undertaken by the Reserve Bank of India constituted a scientific and exhaustive enquiry into many crucial aspects of the rural economy on which hitherto little precise data were available. The data collected on a random sampling basis were derived from 127,343 families in 600 villages in 75 districts in the country. They were presented in 1954 in two volumes entitled *The Survey Report* and *The Technical Report* to which was added *The General Report*, containing the recommendations of the Committee of Direction.

Four circumstances lent to the work of the Rural Credit Survey exceptional importance in the development of co-operation in the country. First, the findings were supported by information which had become available for the first time. Secondly, the Reserve Bank of India was now intimately involved in implementation as a principal party and as an initiator in the field of co-operative policy. Inevitably,

from financial questions, it moved into the sphere of policy and approach. Thirdly, the recommendations of the Rural Credit Survey envisaged certain departures in policy and approach. Among these, the most important was the principle of State partnership in co-operative institutions at all levels and in all fields. The Rural Credit Survey aimed at presenting an integrated scheme of rural credit and other economic activities like marketing, processing, storage and warehousing. Its recommendations led to the nationalization of the Imperial Bank of India and its redesignation in July 1955, as the State Bank of India. The proposals of the Committee of Direction for enlarging the size of the primary co-operative with a view to securing and maintaining organizations with trained personnel and adequate skill, raised far-reaching issues, which remained under debate for a number of years. Finally, since proposals for the development of co-operation were now an integral component of the Five Year Plans, which were undertaken jointly by the Centre and the States, the main issues which arose assumed national significance. Centre-State relations as well as questions bearing on the strategy of rural development were implicit in any conclusions that might be reached.

The investigations of the Rural Credit Survey Committee had shown that in 1951-1952 different agencies contributed towards rural credit in the following proportions:

TABLE I

Credit Agency	*Proportion of borrowings from each agency to the total borrowings of cultivators (per cent)*
Government	3.3
Co-operatives	3.1
Commercial banks	0.9
Relatives	14.2
Landlords	1.5
Agricultural money-lenders	24.9
Professional money-lenders	44.8
Traders and commission agents	5.5
Others	1.8
Total:	100.0

As the Survey pointed out, the available agricultural credit fell short of the right quantity, was not of the right type, did not serve the right purpose and, by the criterion of need (not overlooking the criterion of credit-worthiness) often failed to go to the right people. The cultivator was almost wholly dependent on non-institutional agencies. At the village level, only co-operatives could be a suitable institutional agency for providing credit. Therefore, the foremost objective of policy had

to be the positive and deliberate creation of conditions in which co-opeative credit would have a reasonable chance of success.

Its analysis of the causes of the failure of co-operation led the Committee of Direction to the view that, while co-operation provided for a combination of the weak at the bottom, the State is or ought to be a combination for the weak at the top. An effective programme would become possible only if the State at one end joined hands with co-operatives at the other, thus bringing about a reorientation of the country's administrative, financial and organizational forces in favour of rural areas. More concretely, the Rural Credit Survey envisaged a scheme of State partnership at all levels with co-operatives concerned with credit, processing, marketing and other spheres, supported by the institutional development of storage and warehousing as a basis for bank finance. The Survey also placed much emphasis on systematic training of personnel required at all levels. These proposals were spelt out at considerable length in the Report on the Survey, and formed the basis of the programme for co-operative development in India's Second Five Year Plan (1956-61). Action was initiated in a number of directions. However, on one major issue — the question of size of the primary co-operative — there were strong reservations on the part of the Planning Commission, which were also shared by the then Prime Minister, Jawaharlal Nehru. The discussion simmered on until November 1958, when the National Development Council passed a resolution on co-operative policy.

The National Development Council considered the role of the co-operative movement from an angle much broader than that of rural credit. It was concerned with intensive agricultural production, mobilizaton of local manpower and other resources and, more generally, with the central question of the lines along which the rural economy as a whole was to be rebuilt. The Council considered that—

"For the development of co-operation as a people's movement, it was essential that co-operatives should be organized on the basis of the village community as the primary unit, and that responsibility and initiative for social and economic development at the village level should be placed fully on the village co-operative and the village panchayat... In a rural co-operative, the members should have intimate knowledge of one another as well as a sense of mutual obligation and concern for the rehabilitation of the weaker sections of the community. By working together for the common objective of raising the standard of living of all sections of the population, the community develops social cohesion and unity."

Following the Resolution of the National Development Council, a new Department of Co-operation was established at the Centre as part of the Ministry of Community Development and Co-operation, which took over functions in this field from the Ministry of Food and

Agriculture. The implications of the Resolution were examined by a Working Group on co-operative policy which reported in June 1959. At the suggestion of the State Ministers in charge of co-operation who met in July 1959, a Committee on Co-operative Credit, with Vaikunth L. Mehta as chairman, was set up by the Government of India to consider various practical issues such as standards to be prescribed for credit limits, loan policies and practices of co-operative credit institutions at different levels, measures necessary for increasing the borrowing powers of primary credit societies, and the conditions which should govern share capital participation by the State in primary socities. The recommendations of this Committee were taken into consideration in formulating proposals for the Third Five Year Plan. Conclusions reached with the approval of the National Development Council on the question of size of the primary co-operative, which had proved a difficult issue for as long as five years, were set out in the following terms in the Third Five Year Plan (1961-66):

"While, as a general rule, co-operatives should be organized on the basis of the village community as a primary unit, where villages were too small, the number of villages to be served by a co-operative society could be increased in the interest of viability. The aim should be to ensure viability with the inclusion of the smallest number of villages necessary, so that co-operative societies could achieve both viability and the essential characteristics of co-operation, namely, voluntary basis, close contact, social cohesion and mutual obligation. However, such extension should be subject to certain maximum limits, namely a population of 3,000 (that is, 600 families or about 500 cultivators' families) and a distance of not more than 3 or 4 miles from the headquarters village.

"The broad test of viability should be the ability on the part of a co-operative society to meet the requisite expenses without depending upon financial assistance from Government except for a limited period. However, potential viability should always be assessed on the basis of a programme for fulfilling certain essential conditions, such as bringing into the co-operative all rural families, effective implementation of the village agricultural production plan, linking credit with production and with marketing, supervision of the use of credit, undertaking the functions of distribution and supply, and attracting local savings to the maximum possible extent, as share capital and as deposits. While a population of 3,000 might ordinarily be too high for a primary village society, it was considered desirable to avoid laying down unduly rigid rules on the subject of organisation and size of co-operative societies. Within this broad framework, co-operative societies should be allowed to develop on their own. Particular care should be taken to ensure that existing societies were not interfered

with merely because they did not strictly comply with the pattern of organisation now envisaged. The aim should be gradually to fit them into the new arrangements."

On the basis of the general approach stated above, the Committee on Co-operative Credit outlined its detailed proposals for State participation in share capital and other aspects of co-operative organization. The present policy follows these proposals and includes determination by State Governments of criteria for the viability of primary co-operatives, a programme for enabling potentially viable societies to become viable, and amalgamation or liquidation of weak societies.

The programme for the reorganization of primary co-operative societies described above has been under way for some years. The emphasis on intensive agriculture and on the adoption of high yielding varieties has increased the demand for credit and made it more urgent to complete the programme for reorganization at the primary level. The All-India Rural Credit Review Committee constituted by the Reserve Bank of India in July 1966, with B. Venkatappiah as chairman, submitted in December 1969, its exhaustive review of the rural credit problem in all its aspects. The Committee has reiterated the need for viable primary units and, while not seeking a decision in principle to change the policies agreed to in the early sixties, has suggested various directions in which relaxations in terms of area and population might be encouraged at the primary level. For a variety of reasons, more specially in view of the developments of recent years, the issue of size is now one of practical convenience and local acceptance rather than of basic policy. In varying situations the two sets of considerations which led to the debates of the period 1956-60 would still continue to be important. However, with the nationalization, in August 1969, of the major scheduled commercial banks, the larger demands for credit which have to be met, far exceeding the resources of the co-operative structure, and the greater emphasis currently given to the individual farmer as distinct from the rural community, the issue of viability of primary societies has to be seen in a different and more complex perspective than in the earlier period.

In the first half of the decade of the sixties, almost all aspects of co-operative development came under review by a series of special committees and in conferences of State Ministers of Co-operation and in other forums. These included, for instance, questions pertaining to credit, marketing, processing, farming, transport, labour and construction, training of personnel, administration, consumer co-operatives, non-credit co-operatives, relations between panchayats and co-operatives, and relations between co-operation and community development. To an extent, the wide range of these enquiries, each of which was conducted by a separate body with its own frame of reference, came in the way of

achieving a measure of synthesis in dealing with the practical problems of co-operative development. Useful in their own context, these enquiries lacked a unifying concept about the future organization of agriculture and the directions along which the entire rural structure was expected to develop over a period of years. Moreover, the serious failure of agriculture in 1965-66 and 1966-67 and the marked sense of economic crisis which enveloped the country in this period drew a curtain, as it were, on much that had gone before, and set the stage for a search for new policies.

III. Statistics of Development

In this section we bring together a few leading statistics to show the growth of the co-operative movement. The period preceding the Five Year Plans was marked by expansion in the number of societies and in membership, but the scale of operations undertaken remained small. The Central Government had little or nothing to do with the development of co-operation, which was a task left to the provinces. The emphasis on co-operative development had been placed mainly at the lower levels of organization without sufficient recognition at this stage of the importance of wider institutional and governmental support. The Table below summarizes the growth of co-operative credit societies at the primary level over the period 1919-1920 to 1949-1950. A considerable administrative effort went into co-operation in the decade of the twenties; the thirties were a period of difficulty and stagnation, and only in the later years were the losses caused by the depression made good; during the forties, co-operatives gained from rise in agricultural prices and the growing demand for the products of small industry.

TABLE II

Primary Co-operative Credit Societies, 1919-20 to 1949-50

Primary Societies	1919-20	1929-30	1939-40	1949-50
Number				
Agricultural	25,873	83,093	101,507	133,616
Non-agricultural	1,662	8,362	14,324	24,586
Membership (000)				
Agricultural	903	2,792	3,438	6,560
Non-agricultural	226	897	1,639	4,172
Paid-up share capital (Rs. million)	25	99	136	284
Loans advanced during year (Rs. million)	50	204	211	521

Since the early fifties, co-operative development has been an integral part of the scheme of national planning. This has aided the growth and

diversification of the co-operative structure and, at the same time, it has provided new criteria for assessing its progress and adequacy in relation to the requirements of the economy, specially in the agricultural sector.

The Table below traces the growth of primary co-operative credit societies since 1950-51:

TABLE III

Co-operative Credit Societies, 1950-51 to 1969-70

Primary Societies	1950-51	1955-56	1960-61	1966-67	1969-70
Number					
Agricultural	104,998	159,939	212,129	178,735	162,700
Non-agricultural	7,810	10,003	11,995	13,616	14,816
Membership (000)					
Agricultural	4,408	7,791	17,041	26,709	29,766
Non-agricultural	2,178	3,073	4,573	7,485	7,942
Share Capital (Rs. million)					
Agricultural	76	168	578	1,286	1,811
Non-agricultural	121	191	330	664	876
Loans advanced (Rs. million)					
Agricultural	229	496	2,028	3,665	5,401
Non-agricultural	473	721	1,304	2,802	4,093

The co-operative structure for short and medium-term credit included at the end of 1969-70, in addition to primary co-operatives, 25 State co-operative banks, 342 Central co-operative banks, and 27 industrial co-operative banks. For long-term Credit, the institutional structure comprised 19 Central and 754 primary land mortgage banks. The performance of various institutions has been examined at length by the All-India Rural Credit Review Committee and will be referred to in the following section.

Since the early fifties, a factor of the greatest importance has been the role of the Reserve Bank of India in supporting the co-operative rural structure in a variety of ways, including short and medium-term advances for seasonal agricultural operations and marketing of crops, loans to State Governments for contributing to the share capital of co-operative credit institutions, and investments in debentures issued by land development banks. Both the scope and the scale of participation on the part of the Reserve Bank of India have increased steadily in response to growing needs for credit.

The Bank's role has been recently considered at length by the All-India Rural Credit Review Committee (1969). As the Committee has pointed out, the Bank undertakes, at the same time, financing functions, promotional, advisory and co-ordinating functions, and regulatory func-

tions. For the year ending June 1971, financial support from the Reserve Bank comprised the following:

TABLE IV

	Limits Sanctioned (Rs. million)	Amount Outstanding (Rs. million)
Short-term accommodation		
For agricultural purposes	3,901	1,884
Fertilizer distribution	192	34
Medium-term loans		
For agricultural purposes	187.6	243
Loans to State Governments		
For share capital contribution	118.8	419.3
Investment in debentures of land mortgage banks	41.6	—

The expansion of the Indian economy over the past two decades has thrown up new opportunities for increasing co-operative activity outside the sphere of credit. Although there were some significant developments during the fifties, much of the increase, as shown in the Table below, has taken place in recent years only, and this trend is expected to gain in strength over the next few years.

TABLE V

Primary Non-credit Societies

	1960-61		1968-69	
Type of Society	*Number*	*Membership* (000)	*Number*	*Membership* (000)
Marketing	3,108	1,468	3,342	2,633
Cotton ginning and pressing	128	59	162	118
Other processing	3,103	121	1,308	195
Sugar factories	66	177	99	419
Farming	3,184	88	8,143	211
Weavers'	11,803	1,311	12,373	1,259
Other industrial	21,288	1,217	34,909	1,693
Consumers' stores	7,058	1,341	13,913	3,531
Housing	6,451	379	15,029	996

At the end of 1968-69, the total number of non-credit societies of all kinds, including agricultural and non-agricultural, stood at 136,472, their total membership being over 18 million and working capital Rs. 10,791 million.

There has been significant advance in the consumers' co-operative movement, specially since 1962. In the main, the movement still serves

only the urban areas. By June 1970, the co-operative system included a national federation, 14 State federations, 375 Central or wholesale stores with 2,800 branch stores, and about 14,000 primary stores, of which about 3,500 were described as "dormant". A development in recent years in the larger cities has been the establishment of department stores (or super bazars), of which there are now over 100. At the end of 1969-70, the working capital of consumers' co-operatives amounted to Rs. 315 million, and their membership included 912,000 individuals and 17,265 institutions.

Co-operative processing and marketing now constitute important areas of co-operative enterprise. The co-operative structure for marketing consisted in June 1970, of 3,339 primary societies at the level of the local market, 162 Central marketing societies at district or regional level, 23 State marketing federations and a national federation. Primary co-operatives had as members 172,411 co-operative societies (mainly service co-operatives) and 2.46 million individuals. The total volume of agricultural business transacted by marketing co-operatives was estimated in 1969-70 at Rs. 5,990 million, which included Rs. 2,090 million in food-grains, Rs. 2,550 million in sugar-cane, and Rs. 1,350 million in other crops.

The movement for co-operative processing has gained considerable strength from the small beginnings made in the fifties. By the end of 1969-70, 1,617 co-operative processing units had been organized, including 84 co-operative sugar factories, 237 cotton ginning and processing units, 26 cotton spinning mills, 792 paddy processing units, 192 oil mills, and 38 fruit and vegetable units. Co-operative sugar factories licensed upto 1969-70 represent 47.3 per cent of the total licensed capacity of the sugar industry.

Agricultural production requisites supplied to rural areas through co-operatives include fertilizers, pesticides, seeds and implements. In 1969-70, the total volume of business in these commodities handled by co-operatives was Rs. 2,833 million compared to Rs. 2,534 million in 1968-69. Co-operative business in agricultural machinery is expected to pass progressively to agro-industries corporations which have now been established in all States. In recent years, storage capacity in the hands of co-operatives has increased gradually. In 1970, there were 15,000 rural godowns and 4,000 godowns with marketing co-operatives with an estimated capacity of 2.7 million tonnes. In rural areas, to a limited extent, co-operatives undertake the distribution of consumer articles, mainly through primary agricultural societies supported by marketing co-operatives. In 1969-70, they transacted business of the order of Rs. 2,257 million. Co-operative cold storages have increased steadily in recent years. By the end of 1970, 91 units had been organized and 67 installed.

In June 1969, there were in all 8,160 co-operative farming societies with 219,329 members, of whom 104,621 were agricultural labourers. The total area under cultivation was 280,435 hectares.

In June 1969, there were 15,029 housing co-operatives with a total membership of 999,526.

Spinning mills represent a comparatively new field of co-operative activity. By 1968-69, 61 co-operative spinning mills had come into existence with 15,317 societies and 116,714 individuals as members. They had in all 868,546 spindles.

Planned development and the growing requirements of the economy on the one hand and the need to improve the rural economic structure on the other have combined to strengthen conditions for the rapid development of co-operative activities. Under each of the Five Year Plans, sizeable financial provisions have been made for assisting programmes of co-operative development. Financial provisions for the support of co-operative activities have been made in the plans for agriculture, which mainly form part of the plans of States. Expenditure on co-operation in the First Plan (1951-56) amounted to Rs. 50 million, in the Second Plan (1956-61) to Rs. 380 million, and in the Third Plan (1961-66) to Rs. 770 million. Expenditure under annual plans during the period 1966-69 amounted to 639 million. The Fourth Plan (1969-74) provided Rs. 2,550 million for the development of co-operation.

V. Co-operative Credit

Developments in co-operative policy traced earlier had considerable bearing on the organization and pattern of co-operative credit. From the beginning, the stress was on making adequate supplies of credit available for agricultural production. The Bombay State Co-operative Bank had taken the lead in 1950 in providing finance to agriculturists on the basis of requirements for crop production in place of landed assets. The organizational and other aspects of the crop loan system were worked out at some length by the Crop Loan Evaluation Committee set up by the Bombay State Co-operative Bank, with Professor D. G. Karve as chairman (1958). The crop loan system envisages assessment of the cultivator's credit needs with reference to requirements for different crops, determination of credit limits subject to repaying capacity, advance of credit partly in cash and partly in kind, and linking of credit with marketing. In recent years, efforts have been made to extend the crop loan system, where necessary with modifications, in most of the States. There are, however, still large gaps in its coverage, as well as deficiencies in the procedures being followed. A series of recommendations on the subject were made by the All-India Rural Credit Review Committee (1969).

A number of complex factors enter into the expansion of co-operative credit. Many primary co-operatives and a proportion of Central co-operative banks are inherently weak. The Committee on Co-operative Credit (1960) made proposals for the reorganization and revitalization of primary credit societies. On the basis of these proposals, revitalization and strengthening of primary credit societies is now viewed as a programme calling for sustained action. The number of primary agricultural credit societies fell from 212,129 in 1960-61 to 162,700 in 1969-70, and is expected in due course to decline to around 120,000. Similarly, along with the reorganization of primary societies, a programme for rehabilitating weak Central co-operative banks is also being implemented. The main element of weakness is of course the farmer himself.

Special measures were needed for ensuring credit for low income farmers. A study undertaken by the Programme Evaluation Organization of the Planning Commission showed that in 1960-61 only about 15 per cent of the credit given by co-operatives was received by members with 1.21 hectares of land or less as against 39 per cent received by those with 2.02 to 4.05 hectares and 46 per cent by cultivators with still larger holdings. The Third Five Year Plan had laid stress on admission into co-operative societies as members of all classses of cultivators, including marginal and sub-marginal cultivators and landless tenants, and on providing them with adequate credit on the basis of their production. To facilitate such action, it was agreed that State Governments should make outright contributions to primary societies in relation to additional loans made during a year as against the preceding year. Outright contributions were also to be made to the bad debt reserves of Central co-operative banks in respect of additional finance provided by them. A higher level of outright grants was agreed to for intensive agricultural areas and for high-yielding varieties. To strengthen the management of credit societies, a subsidy was allowed for a period of three to four years, subject to certain financial limits and the actual deficits incurred. The measures led to some liberalization of credit facilities for the weaker farmers, but much more had to be done. The experience gained thus far was studied by the All-India Rural Credit Review Committee and, on the basis of its proposals, Small Farmers' Development Agencies are being established, to begin with, in 46 districts. While making use of the existing institutional structure, these agencies have been provided with modest additional resources to assist "potentially viable farmers" to obtain credit both for short-term and long-term purposes, with provision for an element of subsidy. The problems of small farmers go far beyond the grant of credit and the scheme is to be regarded at present as an experiment to be followed carefully.

The various measures taken to support co-operative credit have led to fairly rapid expansion in membership and in the volume of credit.

The expansion has not been as great as was envisaged in the Resolution of the National Development Council on Co-operative Policy in 1958, nor has it kept pace with the growing requirements of agricultural production. There are, moreover, certain features in the expansion of credit which have caused a measure of apprehension. In recent years, overdues have increased greatly in volume as well as in proportion. They amounted to Rs. 440 million in 1960-61, Rs. 1,250 million in 1965-66 and Rs. 2,680 million in 1969-70. As a proportion of outstanding loans, overdues have increased from 20 per cent in 1960-61 to 29 per cent in 1965-66 and 37.7 per cent in 1969-70. In some States, the proportion of overdues has been exceedingly high.

Increase in the scale of operations has not always been accompanied by adequate control over the use of credit. The Programme Evaluation Organization's Study referred to already showed that 23 per cent of the amount borrowed for short-term purposes was diverted to uses other than those intended. In the case of medium-term loans, the proportion was even higher, being as much as 35 per cent. For short-term and medium-term loans together, the extent of diversion was estimated at 28 per cent.

Credit co-operatives at various levels have tended to develop certain organizational weaknesses to which the leadership of the co-operative movement has paid insufficient attention. Experience has shown that, in their day to day operations, co-operatives, which are basically intended to protect the small man from exploitation, may all too easily favour the strong at the expense of the weak and themselves become an instrument for the acquisition of economic power and for securing larger facilities for the better off cultivators. Co-operative principles such as open membership, democratic control, genuine leadership and continuous improvement in efficiency and operational practices cannot be ensured without responsible supervision by the higher levels of the co-operative structure and leadership, extensive education of members and officials, widespread vigilance and inner democracy within every organization that describes itself as a co-operative.

It is customary to record together statistics of short and medium-term loans advanced through co-operatives. In point of fact, these loans are almost wholly short-term in nature. Between the general co-operative structure which caters mainly to short-term credit and land development banks which provide long-term credit, the need for medium-term loans, which are required for a variety of productive agricultural purposes, is but poorly served. The proposals made by the All-India Credit Review Committee (1969), being limited to minor modifications of existing practices, do not promise a material change in the present situation. The amount of medium-term credit disbursed by co-operatives during the year increased between 1960-61 and 1969-70

from Rs. 200 million to Rs. 523 million. Credit limits sanctioned by the Reserve Bank of India, which stood at Rs. 188 million in 1970-71, were utilized to the extent of 63 per cent.

Long-term agricultural finance is a pressing need to which increasing attention has been given in recent years. At the end of 1969-70, there were 19 Central land development banks at the State level and 809 primary land development banks. Between 1950-51 and 1969-70, loans advanced to individuals increased from less than Rs. 14 million to Rs. 1,132 million and loans outstanding from Rs. 66 million to Rs. 3,668 million. Significant progress was made after 1960-61. The Reserve Bank of India, the State Bank of India and the Life Insurance Corporation have together extended growing support from year to year for the purchase of debentures of land development banks. The total amount of debentures floated in 1970-71 was estimated at Rs. 1,270 million.

An institution of potential importance came into existence with the passing of the Agricultural Refinance Corporation Act, 1963. The Corporation provides refinance facilities to co-operative banks as well as joint stock banks in the form of medium-term and long-term resources for special schemes of agricultural development undertaken on a project basis. These facilities are intended to supplement long-term resources provided by land development banks. In respect of schemes implemented through land development banks, the Agricultural Refinance Corporation generally provides 75 per cent of the funds, Government providing the remaining 25 per cent. By the end of 1969-70, the Corporation had entered into commitments in respect of 371 agricultural schemes, amounting in all to Rs. 2,150 million. Of this amount, Rs. 590 million had been drawn. The States which have been able to take material advantage of facilities offered by the Agricultural Refinance Corporation include Andhra Pradesh, Gujarat, Karnataka, Punjab, and Tamil Nadu.

In recent years, growing concern has been felt about disparities in levels of co-operative development in different States in the country. These express themselves in many ways, for instance, in the degree to which cultivators continue to depend on agricultural money-lenders and other non-institutional sources of finance, volume of resources and operations of the co-operative system, overdues, etc. The All-India Rural Debt and Investment Survey, 1961-62, organized by the Reserve Bank of India to record changes since the Rural Credit Survey of 1951-52, threw considerable light on this problem. The Survey also showed that non-cultivator households had been virtually neglected by co-operative organizations. Thus, while co-operatives of all kinds accounted for 15.5 per cent of the total borrowings of culivator households, in the case of non-cultivators, the proportion was 5.3 per cent. The borrowings of cultivators from co-operative institutions amounted to Rs. 1,605

million, and those of non-cultivators to Rs. 109 million.

The problem of uneven development as between different parts of the country received close attention from the Informal Group on Institutional Arrangements for Agricultural Credit, which included several leading figures of the co-operative movement and reported to the Reserve Bank of India (1964). The following Table, based on the Group's analysis, illustrates the situation of cultivators as between different States:

Table VI

Co-operative Credit: Cultivator Households, 1961-62

State	*Members of co-operative societies as proportion of cultivator-households* (%)	*Proportion of borrowing members to total cultivator-households* (%)	*Loans and advances by co-operative institutions as proportion of total borrowings* (%)
(1)	(2)	(3)	(4)
1. Maharashtra	53	34.9	54.9
2. Gujarat	47	30.3	40.9
3. Madras (Tamil Nadu)	86	40.1	30.9
4. Orissa	13	6.5	27.6
5. Punjab	88	42.2	27.1
6. Madhya Pradesh	23	15.6	24.8
7. Uttar Pradesh	39	22.5	23.6
8. Andhra Pradesh	38	20.2	21.9
9. Mysore (Karnataka)	55	25.5	18.9
10. Jammu and Kashmir	50	43.2	17.8
11. Kerala	49	21.6	16.2
12. West Bengal	19	8.4	9.9
13. Assam	19	2.4	6.4
14. Rajasthan	28	9.9	5.2
15. Bihar	18	4.9	4.1
All India	39	19.7	23.6

The uneven rate of development of co-operation in different States is explained by a number of institutional and other factors. The conclusion to be drawn from a study of these factors is that for the development of co-operative credit along sound and promising lines, there is need to evolve approaches appropriate to the conditions of each State. This aspect was considered by the Informal Group mentioned above. The Group affirmed that co-operatives were the best institutional agency for providing agricultural credit. The structure and policies already developed could ensure adequate credit facilities for agricultural production in areas of relative progress such as the States of Maharashtra, Gujarat and Tamil Nadu. In these, with improved implementation, further progress could be hoped for. There were also a number of States which fell within an intermediate category in which, if the

requisite efforts were made over a period, co-operative development on an adequate scale could still be secured. There was a third group of States in which the task of providing agricultural credit and building up the necessary institutions was one of formidable dimensions. These included Assam, West Bengal, Bihar, Orissa, Rajasthan, Manipur and Tripura. While the long-term approach in these areas would be in favour of development along co-operative lines, in the first phase, a series of remedial measures were called for. Since societies at the primary level were generally weak and revitalization would take time, it would be necessary to arrange for financing of cultivators by Central banks directly; in some cases, even primary societies might have to be financed by banks. At the primary level there would be need for a prolonged and thorough programme of rectification and revitalization. At every stage, it would be important to strengthen co-operative administration and leadership. The Informal Group proposed that, as a transitional arrangement, in the States of Assam, Bihar, Orissa, West Bengal and Rajasthan, agricultural credit corporations should be set up by the State Governments concerned under enabling legislation to be enacted by Parliament. Normally, the agricultural credit corporation should function in areas in which active co-operatives were not available or where existing co-operatives could not be easily activized. In other words, areas of operation for credit corporations should be demarcated in advance. Being conceived of as transitional arrangements, in principle, the corporations should be in a position to withdraw from the field when the agricultural co-operative structure was able to take over responsibility for credit. The corporations should provide short-term loans for agricultural production on the basis of the crop loan system, conducting their operations so that, eventually, the building up of an effective co-operative network was facilitated. Legislation on the lines proposed by the Group was enacted in 1968.

With the development of improved types of agriculture through programmes for intensive areas and for high-yielding varieties, a growing segment of agriculture is assuming a commercial character. As the estimates brought together in the Report of the All-India Rural Credit Review Committee (1969) bear out, credit requirements of agriculture are increasing rapidly and are becoming more varied and complex. For some years, the need was being already felt to draw commercial banks into the sphere of agricultural credit, while emphasizing at the same time that co-operatives should be developed as the main institutional agency for the provision of credit for agriculture. The issue came to a head in 1968 when, as part of the scheme for social control over banking, the National Credit Council constituted a Study Group under the Chairmanship of D. R. Gadgil, on Organizational Framework for the Implementation of Social Objectives. With the nationaliza-

tion, in August 1969, of the major commercial banks, it became possible to view the commercial and co-operative structures as complementary and mutually supporting. Each structure had its strong and weak points. These were analyzed by the Study Group which came to the conclusion that commercial banks could help fill large gaps in the sphere of agricultural production credit and that the best approach to co-ordination between the nationalized and the co-operative banks would be to relate their respective contributions to the requirements of specific districts. Following this "area approach", in 57 districts in the States of Andhra Pradesh, Karnataka, Madhya Pradesh, Haryana and Uttar Pradesh, financing of 2,121 co-operative societies has been entrusted to commercial banks through their branch offices. Through standing committees at the State level and procedures drawn up by the Government, the Reserve Bank of India and others concerned, it is hoped to ensure the necessary co-ordination, and to facilitate the operations of commercial banks without cutting the ground from under the co-operative system. The working of these and related arrangements will need to be observed carefully, for, essential as it is to meet the credit gap, it has to be remembered that there is in the existing circumstances a marked bias in favour of better-placed farmers and the more favourably situated regions and areas and that, without strong pressures in the contrary direction, this bias is likely to be further strengthened. The possibility that over a period co-operatives may come to be regarded increasingly as agencies designed to serve the weaker sections among cultivators rather than the rural community as a whole will have to be guarded against. Likewise, there will be need for vigilance lest co-operatives come to identify themselves with the 'viable' and the middle and upper group of farmers and seek to turn over to new rehabilitation finance agencies the requirements of the petty farmer, the tenant, the artisan and the landless farmer.

The progress and effectiveness of co-operative credit hinges largely on steps taken to link credit with marketing. Although some advance has been made and progress, specially in Maharashtra and Tamil Nadu, can be described as notable, in the country as a whole, the link between credit and marketing is still far from established. Thus, in recent years there has been little significant change in the proportion of primary societies affiliated to marketing societies, or in the proportion of short and medium-term loans advanced by credit societies recovered through sale proceeds. In a favourable agricultural year, such as 1964-65, these proportions stood respectively at 60 and 30 per cent. Marketing of produce through co-operatives is an essential element in a system of production-oriented credit, but it is not enough merely for loans advanced by co-operatives to be recovered through such sales. Indeed, the aim must be that, besides such re-

coveries, co-operative marketing should become the normal mode of sale for all agricultural produce. The direct and indirect benefits of strengthening co-operative marketing are of consequence equally for the cultivator and the national economy as a whole. The details of the action required are already well established, and the essential question is one of effective implementation.

V. Co-operative Marketing and Processing

The principle of State partnership in co-operatives has been an important factor in the expansion of co-operative marketing. Nearly three-fourths of primary co-operatives are at present organized on this basis. Co-operative marketing societies are now able to assume expanding functions in the context of State trading, in the procurement operations of the Food Corporation of India, and in developing exports of commercial crops. In States in which the Food Corporation of India has been appointed as the sole procuring agent on behalf of the Government, as a rule, co-operatives are utilized as sub-agents side by side with private agencies. In Maharashtra, Karnataka, Assam, Tamil Nadu, Punjab, Kerala and Gujarat, co-operatives are used as the only purchase agency for Government either in specified areas or in relation to specified crops. In inter-State trade and in the export of products like banana, copra, oil-cakes, onions, fruits and vegetables, marketing co-operatives are beginning to participate on a growing scale.

Reference has been made earlier to agricultural business transacted by marketing co-operatives. In the distribution of fertilizers and other agricultural requisites, the earlier trend to enlarge the scope of co-operatives has been recently reversed to an extent, specially for fertilizers. In 1969-70, co-operatives distributed fertilizers to the tune of Rs. 2,325 million. Beginning in 1966-67 with an option to fertilizer factories to sell 30 per cent of their output in the free market, the concession has now been extended to their entire production if they so choose. The emphasis in public policy has shifted, consequently, from assuring a clear-cut area of opportunity through supply of adequate credit and other support to enabling co-operatives to compete on more or less even terms with private trade. It is yet early to judge the results of this change of policy.

Marketing and distribution operations on any considerable scale involve problems of organization and management whose importance has been fully recognized. A committee on Co-operative Marketing, which reported in 1966, recommended a three-tier structure in marketing co-operatives, with the apex society at the State level, primary marketing societies at the level of the local market, and branches of the apex marketing society at district or regional level. To assist changes along these lines, it has been proposed that, where federations already exist

at the district level, as part of a three-tier structure, they should gradually divest themselves of those functions which fall properly within the purview of primary marketing societies.

Marketing, distribution and supply constitute a connected set of activities, and it is considered desirable that these should be combined within the same co-operative. In some areas, where particular crops predominate, there is scope for marketing societies dealing with individual commodities, but, frequently, in view of the scale of business and the economies available, the interests of co-operative development are better served through general marketing co-operatives.

The contribution which co-operative processing could make to the strengthening of marketing facilities and adoption of improved and scientific methods in agriculture is best illustrated by the growth of co-operative sugar factories, to which reference has been made earlier. From the production of sugar, co-operative processing has now extended to the manuacture of by-products like alcohol, and recently licences have been given to co-operative units for the manufacture of newsprint and paper from bagasse.

In the expansion of processing in branches of industry other than sugar, there has been a fair amount of development in the co-operative sector over the past decade, but the growth has been generally less satisfactorily planned and supported and has been somewhat sporadic.

The emergence of an industrial sector in the co-operative movement has inevitably brought up problems of organization and management similar to industry in general. Foremost among these is the question of efficiency in management, training and employment of managerial cadres, planning of projects, finance and profitability of individual enterprises, and conditions for the effective utilization of available capacities. In May 1967, a National Institute of Co-operative Management was established for providing basic training in management to co-operative personnel. The practical working of co-operative industrial establishments has reinforced the view that co-operation must succeed in its business aspects if it is to fulfil its role as a movement deriving substantial local support within each region. The various problems which need to be resolved in this connection were reviewed in 1961 by a committee on co-operative processing and, in 1968, by an expert committee on financing of co-operative processing.

VI. Consumer Co-operatives

In several countries, consumer co-operatives account for one-fifth or more of the total volume of business in the distribution of consumer goods and serve both urban and rural areas. They are, thus, able to act as a check on private traders in price and quality and, in turn, they

are themselves compelled to observe high standards of efficiency. In essential commodities of daily use, their role is invariably much larger than in luxury, semi-luxury or branded products. In this sense, in India, consumer co-operation has yet to become a really significant movement. During the Second World War, with a view to participating in the distribution of articles whose prices were sought to be controlled by the Government, numerous primary stores were set up. In 1951-52, there were 9,757 primary stores with a membership of 1.85 million and a total business of Rs. 820 million. The numbers fell until, in 1957-58, there were 6,435 stores with less than 1.4 million members and a total business of Rs. 230 million. Of these, only a third were running at profit. The original Third Plan targets were modest, providing for the formation of 50 wholesale and 2,200 primary stores. However, following the emergency in 1962, with a view to the distribution of essential consumer goods at reasonable prices, countering price increases and protecting the public interest, an expanded programme was taken in hand.

In June 1966, following the devaluation of the rupee, when inflationary pressures were likely to become more intense, the Cenral Government sponsored a new programme, which included the setting up of 101 additional wholesale stores, 2,000 primary stores and 43 department stores. It was envisaged that, over a period, all districts with an urban population of 50,000 or more should come to possess wholesale co-operative stores of their own and, further, that department stores should be established in all cities with a population of 100,000 or more. Besides consumer co-operatives in towns and cities, under schemes sponsored by the Ministries concerned, there were in 1967-68, 2,236 primary consumer co-operative stores in industrial undertakings employing 300 workers or more, and 426 consumer co-operatives organized by workers on the railways, and 13 among coal and mica workers. Beginnings have also been made in the organization of consumer co-operatives for Central and State Government employees and at university centres. For the rural areas, a modest start was made in 1963 with retail distribution by co-operative marketing societies at the centres at which they functioned, distribution in the villages being done through service co-operatives affiliated to them. Thus far, the impetus for the setting up of consumer co-opeatives has come mainly from the Government in the shape of assistance towards share capital, grants for fittings, fixtures, godowns and vehicles, and managerial subsidies. While there cannot yet be said to be an independent consumers' co-operative movement functioning on a country-wide basis, conditions are ripe for the growth of such a movement, and efforts have been and are being made to solve some of the practical, financial, management and supply problems of consumer stores, to provide for supervision and inspection, to enlarge

the size of co-operative stores, and to diversify the range of business. With effective and sustained support from the Central and State Governments and from civic agencies, it is now possible to achieve growth on a large scale. It is clear from the experience of recent years that, in the distribution of essential commodities, unless efficient management, adequate training, careful selection of personnel, financial resources, and appropriate state policies are combined, the consumer's co-operative movement will not gain the strength needed to stand on its own. In a market economy, in which private industry already holds a high proportion of current resources and business, consumer co-operatives face an uphill task. While they can benefit from economic growth at the national and regional level and, in a measure, from public support, it is yet essential that they develop greater operational efficiency.

VII. Co-operative Farming

India's Fourth Five Year Plan for the period 1969-74 has the following to say on co-operative farming in its chapter on Approach and Policy:

> "Co-operative farming, on a voluntary basis, has been officially accepted as the way out (in tackling the problem of full and proper utilization of the land surface). However, so far no substantial progress has been made. Problems of motivation and organization met with in this approach have not yet been successfully solved on any significant scale. Moreover, it has not been sponsored actively enough by any large group or body of opinion within the country. Therefore, except for continuing the present schemes of encouragement of co-operative farming it has not been possible to propose any additional programmes in this plan."

This statement is a far cry from the views advanced in earlier Plans, and more specially in the Second Plan (1956-61) and in the Third Plan (1961-66). Whatever the hesitations in official policy at the present time, the inherent situation of the landless labourer, the tenant cultivator and the small and petty peasant can be expected to compel a measure of rethinking over the next few years in the approach to co-operative farming. Therefore, recognizing the practical lessons of implementation which have been learnt over the past 15 years and the pitfalls and limitations which doubtless abound, the earlier formulations of objectives and approach constitute a more dependable guide to public policy than those recently advanced or the apparent neglect of the role and significance of farm co-operatives in the current phase of development.

In earlier statements of policy, co-operative farming was looked upon as a major line of advance in the reconstruction of the rural economy, so that small peasants, landless agricultural labourers and those now

cultivating as tenants may find equal opportunity in an expanding and increasingly diversified economy. The goal accepted in the Second Plan and maintained in the Third Plan and reiterated somewhat less clearly in the Draft Outline for the period 1966-1971, which was presented in 1966, is that, over a period, a substantial proportion of the agricultural lands of India should come to be cultivated along co-operative lines. It was stressed, first, that measures of land reform and, in particular, the application of ceilings and the reduction of large disparities in the ownership of land would yield adequate benefits only if they were followed by greater co-operation in agricultural production. Secondly, while providing for aid and guidance from Government and institutional agencies, the growth of co-operative farming was visualized as a movement in the interest of the mass of the rural community, pursued mainly through their own leadership and voluntary effort. Thirdly, within the scheme of land reform, individual rights in land were to be fully assured and provided for in terms of an additional dividend over and above the income derived from work. It was realized that there are important technical and organizational problems and, to their solution as well as to the training of personnel, the utmost attention must be given. The emphasis, therefore, was on sound rather than on spectacular development.

However important its potential role, even under favourable conditions, co-operative farming is a difficult movement to succeed. Large and middle farmers are instinctively sceptical of its consequences and small peasants are also not easily convinced that the movement would be to their advantage. The existing balance of power in the rural community, which recent developments have tended to accentuate, runs strongly against the growth of co-operative farming. Case studies of co-operative farming experience undertaken over several years have brought out the fact that if co-operative farming societies are formed by groups of persons with a view mainly to receiving certain benefits or evading agrarian legislation, evil practices easily creep into them, and the genuine cause suffers grievously. Notwithstanding all the difficulties, the Committee of Direction on Co-operative Farming headed by D. R. Gadgil, which reported in September 1965, observed as follows: "Our survey and the case studies reveal notable progress in respect of some pilot as well as non-pilot societies and, at the same time, considerable failures. The areas of success have been those in which there was a conjuncture of favourable circumstances. It is obvious that having discovered these areas special attention must be paid to conservation of results achieved and utilization of the favourable climate for further planned progress. We have found that the crucial elements were non-official leadership, support of co-operative institutions and intelligent operation of governmental agencies."

Accordingly, the Committee made detailed recommendations, which need not be gone over here, but which cover questions as varied as the development of local leadership, size of farm, return for ownership and distribution of income, emphasis on employment and agro-industries, farm management practices, assistance from Government and co-operative institutions, land allotment policies and the priorities and programme of work for the future. It is also unnecessary to consider, in the present context, the major areas of policy on which there is controversy and the critical issues on which clarity and a sense of direction are essential before much progress can be hoped for.*

Some advance has been achieved in recent years, but much remains to be done, and it cannot yet be said that the support available from the Central and State Governments and the various executive and co-operative agencies is of a character calculated to lead to the fulfilment of the objectives laid down and accepted in the Second and Third Five Year Plans. Progress upto June 1969, is summarized in the following statistics:

Table VII

Number of co-operative farming societies	..	8,160
Number of members	..	220,047
Area (hectares)	.	420,783

VIII. Other Co-operative Activities

Under the influence of general policies in support of co-operation, co-operative activities have expanded steadily into several new fields. This is not to suggest, however, that much more than a relatively small part of the potential of co-operation in the given conditions of India has yet been realized. In this section, we review briefly the growth of co-operation in industry, labour and construction, forestry, dairying, poultry, fisheries and housing

Industrial Co-operatives: Industrial co-operatives fall into two main categories: weavers' societies and other industrial societies. In June 1969, there were 12,566 primary weavers' societies, 106 Central societies and 23 apex societies. About one-half of the primary weavers' societies were dormant. The total value of cloth produced by weavers' societies in 1968-69 amounted to Rs. 456 million. Other industrial co-operatives included 20 State, 112 Central and 34,909 primary societies. Of primary societies, a little less than one-half were active. The total value

*In this connection, attention is invited to the contributions to the F.A.O. Regional Seminar on Co-operative Farming for Asia and the Far East, New Delhi, May 2, 1966, published in the *Indian Co-operative Review*, Vol. III, No. 4, July 1966 and the writer's paper on *Approach to Co-operative Farming*, published in *Towards An Integrated Society* (Orient Longmans, 1969), pages 141-156.

of production in 1968-69 was Rs. 302 million. The Table below shows the distribution of these societies by industry:

Table VIII

Other Industrial Societies: Distribution by Industry, June 1969

Industry	*Number of Primary societies*		*Number of individual members in active societies*	*Paid-up capital*
	Total	*Dormant*		(Rs. 000)
Flaying and tanning	2,200	1,647	16,565	3,040
Pottery	1,448	723	26,256	1,854
Hand pounding of paddy and cereals	1,981	1,260	29,372	2,087
Oil crushing	4,117	2,143	41,570	6,496
Palm *gur*	5,091	1,934	299,650	3,309
Cane-*gur* and *Khandsari*	862	498	11,590	3,067
Other village industries	4,667	2,567	146,820	11,109
Handicraft industries	2,445	1,359	62,097	4,819
General engineering	2,057	827	41,934	18,588
Chemical engineering	590	425	14,848	6,936
Leather goods	2,719	1,398	19,765	2,849
Construction materials	1,050	602	20,692	4,178
Sericulture	158	99	15,001	517
Coir	673	254	87,142	1,330
Spinners' societies	259	140	16,938	413
Others	5,193	2,439	186,025	35,951

In recent years there has been a measure of stagnation in the growth of primary industrial co-operatives of all types. Many of them have existed on sufferance or even nominally. Being among the weaker elements in the structure of different industries, whatever difficulties confront the latter have a harsh impact on industrial societies. Besides problems of finance, management and opportunity for productive business, these societies call for much greater attention from industrial administrations than they have received or are currently receiving, and their own organization at each level has been generally inadequate.

Labour and Construction Co-operatives: The role of labour and construction co-operatives in carrying out works in rural areas, in undertaking tasks now left to contractors, and in harnessing manpower resources, specially in the context of masses of landless labour and rural works programmes, has been emphasized in the Five Year Plans. Some measure of state support is assured but, in actual practice, it does not add up to a great deal, and as yet the necessary conditions of policy and organization remain to be established. At the end of 1968-69, there were 5,245 labour and construction societies, with 318,146 members, and works of the value of Rs. 112 million were executed during the year.

Forest Co-operatives: In areas inhabited by tribal communities, notably in the States of Maharashtra and Gujarat, as a matter of policy, considerable emphasis is now being given to the development of forest co-operatives. At the end of 1968-69, there were 1,584 forest co-operatives with about 141,848 members, and works of the value of about Rs. 52.4 million were executed by them during the year.

Dairy, Poultry and Fisheries Co-operatives: Urbanization and increase in urban demand for milk and milk products have provided a favourable economic setting for the growth of a dairying industry. In the supply zones of milk plants, it has been a natural development for farmers to organize themselves along co-operative lines. At the end of 1970, out of 106 dairy plants in operation in the country, 32 were already in the co-operative sector. Between 1960-61 and 1968-69, the number of primary milk co-operatives increased from 3,200 to 10,000, their membership and share capital increasing respectively from 233,000 to 773,000 and from Rs. 4.9 to Rs. 21.3 million.

Poultry co-operatives have also benefited from the growth of urban demand, but on a much smaller scale than dairy co-operatives. At the end of 1968-69, there were 883 poultry co-operatives with a membership of 42,913 and a total volume of business of Rs. 11.67 million.

Progress in fisheries co-operatives in recent years can be described as real, yet modest. In 1968-69, there were 3,994 fisheries co-operatives with 438,737 members—about a third of the fishermen in the country—and a share capital of about Rs. 15 million.

Housing Co-operatives: Urban growth and the extreme difficulty experienced by middle and lower middle income groups in obtaining building sites and finance in cities and towns have led to the development and even mushrooming of housing co-operatives. At the end of 1968-69, there were 18 State level and 15,029 primary housing co-operative societies.

Co-operative forms of organization are readily adopted in several other fields of activity, such as road transport, health, organization of activities such as those of taxi-cab owner-drivers, rickshaw pullers, washermen, etc. In these and other directions, co-operatives are making some headway. They certainly could achieve better results with sound management and greater supervision of their current operations.

IX. Training and Administration

Since the Rural Credit Survey, much attention has been given to the intensive training of personnel serving co-operative departments and

co-operative institutions. In recent years, as co-operation has entered new and specialized fields and the federal approach to organization has been extended, the need for personnel trained in specific jobs has also greatly increased. For several years, training programmes in co-operation were planned and executed under the direction of an *ad hoc* high-level committee. This responsibility has passed to the National Co-operative Union which now runs an all-India institution, the Vaikunth Mehta National Institute of Co-operative Management for the training of senior officials, There are 13 training centres for intermediate personnel and 62 for junior personnel. There are also nearly 600 peripatetic units for training members and office-bearers of co-operative unions. At the end of 1970, the total number of senior officers trained to the time was reckoned at 1,676, of intermediate personnel at 11.786, and of junior co-operative personnel at 87,793. Each year, some 200,000 members and office-bearers of co-operatives are given training in the principles and practice of co-operation.

Though co-operative development accounts for only a small part of the total area of economic and social activity open to it, expansion from year to year even on the scale recorded in the preceding sections represents an enormous administrative challenge, which has yet to be met in any adequate degree. There has been significant expansion at various levels in the departments concerned as well as in the main co-operative agencies. There are acute problems of organization, efficiency, supervision and personnel which call for thorough and systematic consideration and much new thinking. An attempt was made to carry through such a review in the report of the Committee on Co-operative Administration under the chairmanship of Vaikunth L. Mehta in 1963, but too little has been done since to follow through with the recommendations made. Among administrative problems which have assumed increasing importance, as co-operative activities have expanded, are the role and organization of co-operation as a voluntary movement, relations between co-operative organizations and Government agencies, management of co-operative enterprises, protection of the public interest, promotion of co-operation in the interests of the weaker sections of the community, and prevention of forms of exploitation which can and do arise frequently in the name of co-operation and in total contradiction to its spirit and objectives. These and other matters of organization, direction of policy and public education and support have great urgency and seriousness. At the end of a period of wide-ranging advance, mixed and uneven though this has been, these problems and their ramifications leave cause for genuine concern.

B. COMMUNITY DEVELOPMENT

I. Purpose and Method

The choice of community development as the spearhead of work in the rural areas and other developments which have ensued from this decision, which was made as far back as 1952, should be understood as against certain perspective. As stated in the Introduction, the idea existed in several incipient forms many years before independence, and some pioneer experiments had been undertaken. The emphasis was then on the individual, on the human approach, and the focus was on the village. At this stage, agriculture had not yet emerged in the general thinking of the country as the crucial sector of economic development. In a small way, various agencies of Government were attempting to carry their modest programmes of work and technical advice to the rural areas, each barely able to scratch the surface and baffled by the enormous size of the task. There was little to unify and provide direction to the diverse activities in which different agencies were engaged. The nature of economic and social development, seen either as a process or as a goal, was but dimly understood; the time was not yet ripe for it.

In the early fifties, a combination of circumstances arose which made community development a necessary and logical course to follow. There was, first, the commitment to an overall national plan which would cover all aspects of social and economic life. In the setting up of a genuine democracy, with the support and participation of the people, the aim was to rebuild the economy of India and reshape and modernize her social institutions and attitudes. Secondly, there was the concern, which Gandhiji had expressed continuously in his life and work, with the problems of poverty in the villages. The peasant's life was one organic whole. It was not segmented in the manner of departments and activities of Government. The man and the community were but two sides of the same question; neither could advance without the other The community comprised not only those who had land, much or little, but also those who cultivated as tenants or worked as labourers and artisans, and others in the village. The method of development to be followed should provide for them all, not merely for some, leaving others to their fate. The shortage of food and raw materials, following the war and partition, was a cause of imbalance, hardship and inflation, and had to be overcome as swiftly as possible. The technological imperatives of agriculture at this stage were not seen as fully as they came to be in later years, but V. T. Krishnamachari's own experience in Baroda had emphasized the value of rural extension, an impression

reinforced from what was then known in India about the changes brought through the work of extension services in the United States. The work of Albert Mayer and his associates at Etawah in Uttar Pradesh had drawn pointed attention to the practical value of 'development blocks' as suitable areas of action and to the role of multi-purpose village level workers in working with the people, helping to change attitudes and stimulate self-help on the part of local communities. The Grow More Food Committee and, earlier, the Fiscal Commission, both headed by V. T. Krishnamachari, gave him an opportunity to stress the fact that the administration at the district level had to be transformed into an agency for welfare and development and that, through the provision of extension and other services, the people had to be given the means and the capacity to expand production and, increasingly, to provide for themselves the amenities and other conditions for economic and social progress. Other circumstances aided the process, for instance, the interest of the Ford Foundation in rural extension projects and the conclusion of an agreement with the United States for technical co-operation in community projects.

Through 1952-53, as work in the first fifty project areas was being taken in hand, the concept of community development as a programme of development to be carried out on a nation-wide scale took fuller shape. Some cautioned against the pace. There were inconsistencies which were not reconciled as, for instance, the distinction made in the early years between the idea of a 'national extension service', with emphasis on agriculture and small outlays for other activities, and 'community development' which was thought to be more varied in its impact and would cost more. Soon, also, it came to be seen that there were severe limits to what even devoted extension officials could hope to achieve unless the people were motivated, responsibility placed on them, and resources of leadership and initiative within the rural community brought into play. Nevertheless, important decisions had been taken and action in the villages was under way and, with pardonable pride, Jawaharlal Nehru, who was himself so much the inspiration of this tremendous adventure, spoke of community projects as 'centres of human activity which are like lamps spreading their light more and more in the surrounding darkness'. "This light has to grow" he said, "till it covers the land". Community programmes were at least a vital part of the answer to the question, as he put it many years later, 'how is one to draw the 80 per cent people in rural India out of their ancient ways and habits and their methods of thinking'?

After experience had been gained for a period of three to four years, early in 1956, the Committee on Plan Projects, which had then been constituted under the aegis of the National Development Council, set up a Study Team to consider certain questions relating to the execution

of the community development programme, including co-ordination, personnel, peoples' initiative and participation and methods of reporting. Later, proposals for introducing democratic processes and representation at the block and district levels, which had been broadly outlined in the Second Five Year Plan, were also referred to this body for detailed consideration. The work of the Study Team, which was headed by Balwant Rai Mehta, had two important results. First, it removed the contradiction mentioned earlier between community development and the extension service and gave a unified conception to the programme. In each development block, the programme was to pass through two stages, each of five years, a larger outlay being provided for in the first stage than in the second. From this scheme emerged the notion of a 'pre-extension' and a 'post-extension' period. The block was to be the unit of development, so that the idea of a 'block plan' within the framework of a 'district plan' and comprehending 'village plan', was seen as a natural evolution. The second and, on a long view, the more fundamental contribution of the Study Team was to give shape to the idea of democratic decentralization or local democracy, to which Jawaharlal Nehru, who was greatly drawn to the values implicit in it, gave the name of Panchayati Raj. By Panchayati Raj is meant a network of civic institutions at the village, block and district levels to which responsibility for development is decentralized by the State Governments, accompanied by appropriate resources and delegations of power.

The proposals of the Study Team on the organization of the community development programme were accepted and given effect to. However, as the end of the ten-year period envisaged at the time drew near in many areas, it began to be realized that rural development was a more long-drawn and complex process and new decisions would be needed. The proposals on Panchayati Raj were also accepted in principle and it was left to each State to enact the necessary legislation after determining whether the main point of decentralization should be the district or the block. Whatever the decision, it was important to stress the key role of Panchayats at the village level, and to ensure that democratic institutions at various levels were linked together into an organic structure and were provided with the necessary administrative and organizational support. It was also visualized that voluntary organizations and the co-operative movement would be conceived of as part of rather than as mere adjuncts to Panchayati Raj.

II. Programmes and Progress

For carrying out the national programme of community development, the country was delimited into 5,265 development blocks. At the end

of September 1969, 2,071 blocks had completed twelve years of developmental work and had entered the 'post-extension' period, 2,496 were in the second stage, and 693 were in their first five-year period. The coverage of community development activities expanded as shown below:

Table IX

	Upto 1955-56 (First Plan)	Upto 1960-61 (Second Plan)	Upto 1965-66 (Third Plan)	1969-70
A. 1. Number of blocks allotted	1,075	3,137	5,242	5,265
2. Population (millions)	69	203	404	405
3. Number of villages (000)	143	364	565	567
B. Number of blocks in				
(a) Pre-extension stage	—	490	17	—
(b) Stage I	1,075	2,258	2,315	495
(c) Stage II	—	879	2,168	2,422
(d) Post-Stage II	—	—	760	2,348
Total:	1,075	3,627	5,260	5,265

The nucleus block budget was placed at Rs. 1.2 million for the first five years and at Rs. 0.5 million for the second period of five years. These amounts were to be supplemented for specific programmes of development from provisions made in different sectors of the Five Year Plan, the block and the block organization being viewed as vehicles for transmitting resources, technical advice and impulses for action at the area level. For tribal development blocks, additional provisions to the extent of Rs. 1 million in the first stage and Rs. 0.5 million in the second were to be made from the appropriate sectoral allotments. The total expenditure on the community development programme over the fifteen year period covered by the first three Plans has been of the order of Rs. 5,000 million—Rs. 460 million upto 1955-56. Rs. 1,870 million between 1956-57 and 1960-61, and Rs. 2,670 million between 1961-62 and 1965-66. Roughly, a third of the expenditure was accounted for by establishment (including buildings for the development block), another one third by agriculture and the remaining by other activities. Expenditure on community development between 1966-67 and 1970-71 was estimated at Rs. 1,400 million.

Community development provided the pattern and organization of rural administration at the base. In doing so, it furnished a means for implementing programmes in different spheres with a degree of co-ordination in relation to one another and facilitated expansion in a number of fields *pari passu* with increase in the number covered by

community development blocks. This was especially the case in agriculture, health and education. The entire programme for rural health services was based on primary health centres, which were established in line with the opening up of new community development blocks. Whatever might be said of the adequacy of personnel at the block and village levels and whatever improvements in training and in the quality of extension personnel were felt to be necessary in later years, it still remained a fact that, but for the structure of community development, the foundations for implementing vast programmes of development in different sectors could not have been secured without having to incur much larger expenditures and employing much bigger staffs. All organization and development involve in some measure the creation of bureaucracies. Even recognizing that community programmes should have put greater emphasis on efficiency in agricultural extension and other specialized services, with all its limitations, this national programme made possible a scale and pattern of effective rural action such as would have been most difficult to achieve in any other way.

In the first decade of community development, the emphasis on training of personnel and the attention given to techniques of extension served as a valuable example for action in other fields as well. In March 1970, extension staffs in the blocks included 58,875 village level workers, 4,197 block development officers, 6,464 extension officers in agriculture, 4,520 in co-operation, 3,959 in animal husbandry, and 5,783 in social education and Panchayat work. There were also 3,146 medical officers, 3,143 progress assistants, 4,384 overseers, 1,818 *mukhya sevikas*, and 6,087 *gram sevikas*. Much can be said on inadequacies in the quality of various categories of personnel in the blocks but, given the effort, these deficiencies are capable of being removed. Far more important is the fact that a considerable organization was built up over the years, that vast numbers were put through various courses of training, and that the central purpose of community development was seen as service to the rural people and the creation in each area of capacity, on the part of the people, to plan for themselves, to throw up new leadership, and to participate intensively in development and in the processes of civic administration at various levels.

Three important illustrations of the interaction of community development with national schemes of significance, which were taken up in later years, are the programmes for family planning, for applied nutrition, and for rural works. These involved extensive and widespread action at the community and area level, and it was natural that they should be enmeshed with community development. Programmes for co-operative development also fell within the general pattern. Certain difficulties were, however, experienced in relation to specific agricultural programmes. These were of two kinds. First, of all the agencies

operating in the rural areas, the agriculture departments were somewhat better equipped in personnel than others. The idea of an integrated administration at the block level with village level workers performing functions wider than those of agriculture alone raised certain apprehensions bearing on control, performance and organization, and from time to time even evoked negative reactions from agricultural personnel at the higher levels. Secondly, the fact that progress in agriculture did not measure upto expectations and fell short of the needs of the country and that the quality of extension services, of the research which supported them and the inputs and supplies available were less than adequate, raised from time to time serious doubt concerning the role of community development in relation to rapid agricultural development. Some important lessons have been learnt in recent years and the gaps both on the side of community development and agricultural development are now better understood and are being filled. The character of the agricultural problem and the nature of the contribution which rural administrations at the area level have to make have both changed. There is need for greater intensification and specialization and for improvement in the quality of rural services and in the range of supplies and inputs to be brought to the farmer. It is being realized that, along with the farmers, who must receive better service, there is also a great deal to be done constantly and continuously in the interest of the weaker and the vulnerable sections of the rural community. In June 1968, a conference of Chief Ministers reviewed the state of community development, took note of recent developments, several of which had tended to weaken the movement, and once again affirmed the necessity of an integrated community approach to rural problems, supported by efficient administration in agriculture and a growing and broad-based co-operative movement.

III. Panchayati Raj

A few words may be added here about Panchayati Raj or the movement for local democracy. As explained earlier, this movement grew out of community develpoment with the object of giving opportunities to the local community to shape its own future, to throw up new leadership, and accept increasing responsibility for its own welfare. Had the links and the sequence of events not been what they were, local democratic institutions would still have been found necessary and would have come about in some other way, possibly as a measure of administrative and political change and as a result of popular pressure. In this sense perhaps Panchayati Raj came sooner than the country was prepared for it. In the recent past, the pace of progress in the development of local democracy has been slower than had been hoped for, and it has become even

more important to view Panchayati Raj as an independent national goal and a movement to be fostered rather than merely as a set of institutions which are a by-product of the administration of community development and other rural programmes.

The main facts concerning the development of Panchayati Raj can be briefly stated. Panchayats at the village level exist throughout the country. They constitute the foundation of the entire system and need to be utilized far more purposefully as instruments of village planning and village development than has happened thus far. In the absence of such effort and of greater emphasis on the role of the *Gram Sabha* or the village assembly, panchayats readily become centres of factional activities and provide scope for misuse of power, and even the meagre resources available to them can be misapplied. In 1970, there were 214,967 village panchayats, 3,297 panchayat bodies at the block level, and 254 district level panchayats, commonly known as *Zila Parishads*. Between 1959 and 1963, 13 States enacted legislation for Panchayati Raj; of these, 11 have sought to give effect to it, though with varying degrees of emphasis on effective decentralization and local planning. In recent years, the movement for democratic decentralization has suffered a setback, and various economic and political factors have worked against the development of the institutions of rural democracy at the base. In several States, there has been insufficient recognition of the constructive possibilities of Panchayati Raj institutions. Where the necessary institutions already exist, need is felt for more unified guidance from the administrations at the State level, which tend to function along departmental lines. Much also remains to be done by way of administrative and financial delegations and improvements in procedures. To enlarge the scope for constructive action on the part of Panchayati Raj institutions, it is necessary to move as quickly as possible, on the one hand, in the direction of intensive area development, with particular attention to agriculture, employment, education and family planning, and, on the other, in the direction of integrated rural and urban development, involving close co-operation between and dovetailing of Plans between rural and urban institutions.

IV. Unifying Ideas

In conclusion, it may be stated that three basic ideas are common to the movements for co-operation, community development and Panchayati Raj. These are: self-help, self-reliance and the harnessing of local resources and leadership; responsibility on the part of each community and each area for planning its own welfare and development; and continuous partnership in development between the administration and the people. These ideas are vital for any multi-party social demo-

cracy which is committed to human and moral considerations, but they do not stand alone. They gain their true function and significance only in the context of national planning and of social and economic policies conceived in the interest of the community as a whole and, more specially, in the interest of those who have remained poor and weak and backward. Without this wider social perspective, all too soon, the institutions of Co-operation, Community Development and Panchayati Raj can miss their purpose, as indeed they have already done from time to time in different parts of the country. Therefore, on the part of all citizen-leaders and the community generally, there is need for the utmost care and vigilance both in respect of the means they employ and the ends they serve.*

*The writer wishes to express his gratitude to P.N. Damry, S.S. Puri, and A.C. Bandopadhyaya, in going over information contained in an earlier version of this chapter.

CHAPTER VI

AGRICULTURE AND ALLIED INDUSTRIES

I. Agriculture in the National Economy

India is primarily an agricultural country and the agricultural sector is the mainstay of the national economy accounting for almost half of its national income and three-quarters of its working force. Agricultural commodities comprise almost 80 per cent of the total consumer expenditure. Fluctuations, in agricultural output levels, therefore, play a key role in the state of the national economy. Prices of consumer goods as also the general price level fluctuate with the rise and fall in agricultural prices. Price variations influence, in turn, the wage levels. The purchasing power of the vast majority of the people in India is thus inextricably linked up with the fluctuating fortunes of agriculture.

In the sphere of international trade also agriculture has the place of pride. The main agricultural commodities which are exported are tea, oilcakes, fruits and vegetables, spices, tobacco (raw and manufactured), cotton (raw and waste), coffee, cocoa, sugar and sugar products, hides and skins, raw wool and other varieties of animal hair and vegetable oils. Cotton and jute textiles, which are important commodities, also depend for their raw material on agriculture. The share of agricultural commodities in the import trade has varied from 38.6 per cent in 1960-61 to 51.1 per cent in 1967-68 ; import commodities being cereals and cereal preparations, raw cotton, fruits and vegetables, fertilizers (crude and manufactured), vegetable oils and fats, dairy products, raw jute, tractors, raw wool, rubber and agricultural machinery and implements. Efforts are being made to reach self-sufficiency in agricultural commodities, specially foodgrains, raw cotton and jute.

Economic regeneration is being attempted over a succession of Five Year Plans. The tempo of industrialization is being built up and agricultural output has to grow so as to meet the raw material requirements of various agro-based industries as also to provide not only better nutritional standards, but also to meet the demand for various food items at improved levels of income. It has been the experience the world over that in predominantly agricultural

economies, agriculture has to serve as the base for capital formation in the earlier stages of economic development.

After two successive years of drought marked by uncertainty of food imports and a rather steep upward swing in prices, the last two years, 1969-70 and 1970-71, have produced an all time record production of foodgrains. Self-sufficiency in food for which the country had been striving hard over the successive Five Year Plans seems to be in sight for the first time and the Government has announced its policy of stopping all imports after 1971.

Occupational Pattern : Agricultural classes consisting of cultivators (78.7 million) and agricultural labourers (47.3 million) formed about 70 per cent of the total workers of 126 million in 1971. Dependence on agriculture was more marked in the rural sector constituting about 80 per cent of the total population. A look at the census data will reveal that urban population as a proportion of the total has remained more or less constant during the last several years. This constituted 17.3 and 18.2 per cent of the total population according to 1951 and 1961 Census respectively. The agricultural sector thus continues to absorb a major proportion of the increase in the total working force.

National Income : Distribution of national income by industrial origin for the period 1950-51 to 1969-70 (the latest year for which such estimates are available) shows that the share of various agricultural commodities, animal husbandry, and ancillary activities has ranged from 45 to over 50 per cent at current prices during this period. The contribution of forestry and fisheries to the national output was not very significant, having ranged between 0.7 to 0.8 per cent in the case of forestry and 0.4 to 0.7 per cent in the case of fisheries (Table I).

Sectoral importance of various products which constitute this broad sector can be examined from the available data. The gross value of output from agriculture, animal husbandry, and ancillary activities was Rs. 156.1 billion during 1969-70 at current prices. Of this, the share of animal husbandry comes to over 20 per cent. Within agriculture, foodgrains (including cereals, pulses, and gram) generally account for nearly 50 per cent of the total. Taking into account all the major cash crops, i.e. oilseeds, sugarcane, fibres, tea, tobacco, chillies, and fodder, the gross value of non-food crops including straw accounts for nearly 25 per cent of the gross cropped area.

Statistics of output as well as value of these non-food crops are rather scanty. The position is no better in respect of animal husbandry, fisheries, and forestry. With improvement in the statistics in respect of these products, it is quite likely that the real contribution

TABLE 1

National Income According to Major Heads at Current and Constant 1960-61 Prices

(Billion Rupees)

Industry	1950-51 Current Prices	1955-56 Current Prices	1955-56 1960-61 Prices	1960 Current Prices	1965-66 Current Prices	1965-66 1960-61 Prices	1966-67 Current Prices	1966-67 1960-61 Prices	1968-69 Current Prices	1968-69 1960-61 Prices	1969-70 Current Prices	1969-70 1960-61 Prices
1	2	3	4	5	6	7	8	9	10	11	12	13
Agriculture, animal husbandary and ancillary activities%	48.9 (51.3)	45.2 (45.3)	59 0 (54 1)	68.2 (51.3)	99 5 (48.2)	64 4 (43.0)	120.1 (50.2)	64.4 (42 3)	145.0 (50.6)	75.4 (44.2)	156.1 (50.1)	79.3 (44.1)
Mining, manufacturing, small enterprises, construction, electricity, gas and water supply	15.3 (16.1)	18.5 (16.6)	19.7 (18.1)	26 9 (20.2)	43.8 (21.3)	36,1 (24.0)	48.0 (20.1)	36.8 (24 1)	56.0 (19.5)	39.4 (23.1)	62.7 (20 1)	41.6 (23.2)
Commerce, transport and communication	16.9 (17.7)	18.8 (16.6)	18.8 (17.3)	24.1 (18.2)	41.0 (19.9)	31.4 (20.9)	47.0 (11.6)	32 28 (21.2)	56.0 (19.5)	34.8 (20 4)	60.3 (19.3)	36.7 (20.4
Other Sources+	14.4 (15 1)	17.3 (17.3)	11.6 (10.6)	14 4 (10 9)	23 6 (11 4)	19 6 (13.0)	26.3 (11.0)	20.4 (13.4)	32.3 (11.3)	22,6 (13.3)	35.2 (11.3)	23.8) (13.3)
Net factor income from abroad	(—) 2 (—) 0.2	— —	(—)0 10 (—)0.9	(—)0.7 (—)0.5	(—)1.65 (—)0 8	(—)1.5 (—)1.0	(—) 2.3 (—) 1.0	(—) 1.5 (—) 0.9	(—) 2.6 (—) 1.0	(—) 1.8 (—) 1.0	(—) 2.6 (—) 0.8	(—)1.8 (—)1.0
Net national product at factor cost	95.3 (100.0)	99.8 (100 0)	109.1 (100.0)	132 9 (100.0)	206.2 (100.0)	150.2 (100 0)	239.0 (100 0)	152.4 (100.0)	286.8 (100 0)	170.6 (100.0)	311.7 (100.0)	179.6 (100.0)
Per capita income (in rupees)	266.5	255.0	273.7	306.3	426.1	310.4	482.9	307.9	554 7	32.9	589.3	339.4

% Industry, forestry and fishing.

+ Comprising professional and liberal arts and government services.

of agriculture and its allied sectors might be discovered to be more than the one depicted by the incomplete data.

Foreign Trade : Commodity-wise contribution of the various agricultural commodities to the import and export trade of the country for the last five years are presented in Tables II and III. The quantum of gap in a particular year is very much influenced by the production level attained both in regard to imports and exports. Apart from the levels of agricultural production, there are many other internal and external factors which exercise an influence on the magnitude of these trade flows. External factors may be those relating to the price and production situation in the country from which our imports originate or those to which our exports are destined. The importing countries have also an influence on the magnitude of our export trade flows. Important internal factors which have a bearing on the pattern of export trade in agricultural commodities are: (i) export policy regulations and control measures; (ii) trade agreements with the various countries in regard to agricultural commodities ; (iii) development of trade institutions and organizations like UNCTAD and GATT; and (iv) the internal demand and the export surplus.

On the importing side, the exigencies of foreign exchange situation are of paramount importance and the import policy has necessarily to be of a restrictive nature. Import policy has to be shaped with an eye on ensuring an even flow of the availability of essential requirements of the economy in general and of the export and defence oriented industries in particular. In the agricultural sector, there is need for import of (a) foodgrains, to meet the gap between the total internal demand and supply till we have reached the level of self-sufficiency; (b) fertilizers and other inputs of industrial origin which cannot be indigenously produced; and (c) essential raw materials not indigenously produced for the running of certain agro-based industries more important of which are jute and cotton textiles. What is important in the overall context is the import bill for cereals and cereal preparations. They accounted for 15 to 17 per cent of the total imports in years of normal production. In bad years, however, when production fell due to vagaries of weather, this increased to over 25 per cent.

A study of the export possibilities in a long range perspective would indicate that the importance of these agricultural products is not likely to decline. As far as one can foresee, foreign exchange earnings of the country will continue to be derived to a large extent from these agricultural raw materials. On the import side, the possibility of eliminating imports of certain other agricultural raw

TABLE II

Imports of Major Agricultural Commodities

(Rs. crores)

Commodities	1960-61	1967-68	1968-69	1969-70	1970-71
1. Cereal & Cereal preparations	285.7	518.2	336.6	261.0	213.0
	(15.9)	(25.8)	(17.3)	(16.7)	(13.1)
2. Cashew Nuts (unprocessed)	15.1	25.1	31.4	27.6	29.4
	(0.8)	(1.3)	(1 6)	(1.8)	(1.8)
3. Copra	18.3	4.4	2.6	2.8	3.2
	(1.0)	(0.2)	(0.1)	(0.2)	(0.2)
4. Crude Rubber (including synthetic & reclaimed)	17.0	4.4	4.9	9.6	3.8
	(0.9)	(0.2)	(0.3)	(0.6)	(0.2)
5. Fibres of which :	159 6	105 3	121 8	111.1	126.7
	(8 9)	(5.2)	(6.4)	(7.1)	(7.8)
(a) Raw wool	16.4	11.8	11 2	17.2	16.1
	(0 9)	(0.6)	(0.6)	(1.1)	(1.0)
(b) Raw cotton	128 8	83.0	90.2	82 8	98.3
	(7.2)	(4.1)	(4.7)	(5 3)	(6.0)
(c) Raw jute	12.0	1.8	9 3	1.1	0 2
	(0.7)	(0.1)	(0.5)	(0.1)	(0.01)
6. Animal & Vegetable Oils & Fats	7,2	34.4	19.3	29.6	38.5
	(0.4)	(1.7)	(1.0)	(1.9)	(2.4)
7. Fertilizers & Fertilizer materials	23 4	209.5	198.2	107.4	61.2
	(1.3)	(10.4)	(10.4)	(6.9)	(.8)
8. Pulp and Waste Paper	10 6	10.3	10.4	12.5	12 3
	(0 6)	(0.5)	(0.5)	(0.8)	(0.8)
9. Paper, Paper Board and manufactures thereof	19.1	17.7	18.3	23.7	25.0
	(1.1)	(0.6)	(1.0)	(1.5)	(1.5)
Total Value of Imports	1,795.0	2,007.6	1,908.6	1,567.5	1,626.2
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

TABLE III

Exports of Major Agricultural Commodities

(Rs. crores)

	1960 61	1967-68	1968-69	1969-70	1970-71
1. Jute Manufactures	212.9	234.1	218.0	206.7	189.2
	(20.5)	(19.5)	(16.1)	(14.6)	(12.4)
2. Tea	194.7	180.2	156.5	124.5	148.2
	(18.7)	(15.0)	(11.5)	(8.8)	(9.7)
3. Cotton Fabrics	90.6	65.4	70.5	69.7	97.4
	(8.7)	(5.5)	(5.2)	(4.9)	(6.4)
4. Coir Yarn and Manufactures	13.7	12.8	13.8	13.4	13.6
	(1.3)	(1.1)	(1.0)	(0.9)	(0.9)
5. Oil Cakes	22.5	45.5	49.5	41.5	55.4
	(2.2)	(3.8)	(3.6)	(2.9)	(3.6)
6. Leather & Leather manufactures	39.3	53.5	72.7	81.5	72.2
	(3.8)	(4.5)	(5.4)	(5.8)	(4.7)
7. Cashew Kernels	29.8	43.0	60.9	57.4	52.1
	(2.9)	(3.6)	(4.5)	(4.1)	(3.4)
8. Tobacco	24.8	35.6	33.8	33.4	32.6
	(2.4)	(3.0)	(2.5)	((2.4)	(2.1)
9. Coffee	11.4	18.2	18.0	19.6	25.1
	(1.1)	(1.5)	(1.3)	(1.4)	(1.6)
10. Sugar	3.8	16.0	10.2	8.6	27.6
	(0.4)	(1.3)	(0.8)	(0.6)	(1.8)
11. Pepper	13.4	13.1	9.7	16.2	16.3
	(1.3)	(1.1)	(0.7)	(1.1)	(1.1)
12. Hides & Skins Raw & Fur Skins	14.9	7.6	5.3	8.4	3.8
	(1.4)	(0.6)	(0.4)	(0.6)	(0.2)
13. Raw Cotton	13.7	14.8	11.1	14.7	16.4
	(1.3)	(1.2)	(0.8)	(1.0)	(1.1)
14. Fish and Fish preparations	7.3	18.4	22.7	31.5	30.5
	(0.7)	(1.5)	(1.7)	(2.2)	(2.0)
15. Vegetable Oils (essential and non-essential)	19.9	7.7	16.1	9.3	9.7
	(1.9)	(0.6)	(1.9)	(0.7)	(0.6)
Total Value of Exports	1,039.8	1,198.7	1,357.8	1,413 3	1,524.4
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

materials like superior varieties of cotton, jute, etc., during the next few years cannot be visualized. A situation of nearly overall self-sufficiency in the matter of foodgrains is, however, contemplated in near future when all concessional imports may be stopped.

Consumption Expenditure: Reports of various rounds of National Sample Survey give useful data on consumption expenditure. Generally speaking, as much as 63 per cent of the total expenditure is incurred on food, with foodgrains accounting for nearly 37 per cent. Another 16 per cent of the consumer expenditure is incurred on items like textiles, foot-wear, fuel, and household equipment all of which are mostly of agricultural origin. This aggregates to 79 per cent of the total consumer expenditure. As the achievement of certain nutritional norms is an essential feature of plan formulations, percentage share of food items in the total expenditure is likely to remain at the present levels, at least for some time to come, although the importance of cereals will slowly go down and other foods rich in protein will be consumed more and more.

II. Environmental Factors

Agriculture depends on nature. Recent advances in science and technology have helped to reduce dependence on nature. But handicaps placed by nature can be overcome only at a cost. Thus, an appraisal of environmental factors is essential both for assessment of agricultural potential and for deciding on efficient land use patterns and management techniques in order to obtain maximum possible agricultural output.

Several environmental conditions affect crop production. Attention has been focussed here on two of them which are of crucial importance, *viz.*, soil and climate. An attempt is made to highlight those features of Indian soils and climate which have an important bearing on agriculture.

Soils: Systematic soil surveys and soil testing is a relatively recent development in India. District Gazetteers and Revenue Settlement Reports compiled during the British regime contain a good deal of useful information on soils. But most of it is based on personal observations and experience—albeit of very shrewd and perceptive revenue officers. The first attempt to classify Indian soils on the basis of parental rock materials was made by Leather in 1898. His four-fold grouping of Indian soils has formed the traditional classification. A good account of traditional classification of Indian soils is to be found in the Report of the Royal Commission on Agriculture in India, 1928. The traditional classification of Indian soils into four major types—alluvial, *Regur* (black cotton soil), red

and laterite—has been followed in all standard works on Indian geography.

Soil survey work during pre-1928 period suffered from absence of a co-ordinated all-India approach. General soil studies were made with regard to their contents of plant nutrients and mechanical analysis of their composition which yielded useful agronomic information. But these studies pertained to very small areas and were of isolated character. One of the grievous defects of such isolated studies was that no standard and uniform methods of sampling and analysis were followed. All such studies, though useful in themselves, were of little help in the work of detailed soil mapping for the country.

The Royal Commission on Agriculture, 1928, recognized the importance of systematic soil survey work. It recommended soil surveys for specific purposes and emphasized the need for "intensive studies of the more important types of soil" and for "collection and publication of all the information in regard to the composition and characteristics of Indian soils which is available."

Extensive soil surveys were initiated in the Punjab in 1928. Soil survey work was extended gradually to other areas in the subsequent period. The Indian (then Imperial) Council of Agricultural Research sponsored the scheme for collection, critical examination and collation of the information collected. The Report which was completed in 1946 contains all information on soils and crops available in the country upto 1945. This report was published in 1953.

Emphasis on planned agricultural development since independence has brought to light the imperative necessity of soil surveys and soil testing. An All-India Soil Survey Scheme was started in 1956, primarily for conducting reconnaissance soil surveys. This Scheme was later integrated with the Land Use Planning Scheme of the Central Soil Conservation Board and is now known as All-India Soil and Land Use Survey Scheme. Extensive field-work has been done to fill up the gaps in the existing knowledge regarding soils. Information collected upto the year 1960 was brought together in a comprehensive volume and published by the Indian Council of Agricultural Research towards the end of 1963. It contains soil maps for all-India and State-wise. It gives a comprehensive account of soil surveys and soil information for each of the States and Union Territories. Among several aspects covered for each State are : geology, climate, vegetation, irrigation, soil fertility, soil characteristics like physical, chemical and physico-chemical properties. State-wise details are given regarding formation, structure, genesis, profile,

p.H values, and classification of soils, and also methods of their reclamation and management.

Despite extensive soil survey and soil testing work in India since independence, soil mapping and correlation has not yet proceeded very much beyond delineation of the broad pattern of soil orders and sub-orders largely related to macro-regional and regional characteristics pertaining to climate and vegetation, slope and regolith (Table IV).

There are four major groups of soils in India :

(i) Alluvial

(ii) Black

(iii) Red

(iv) Laterite and Lateritic

Alluvial Soils : These soils constitute by far the largest group of soils in India, covering nearly 15 lakh km. They are derived from silt deposited by the numerous rivers throughout the length and breadth of the country, from deltaic alluvium, and from coastal alluvium. They are found mainly in the states of the Punjab, Rajasthan, Uttar Pradesh, Bihar, West Bengal and parts of Assam and Orissa. They also occur in the valleys of Brahmaputra and Surma in Assam, of Narbada and Tapti in Madhya Pradesh, and of Godavari, Krishna and Kaveri in South India. Geologically, alluvial soils may be divided into two broad sub-divisions, *viz.*, older and newer alluvium. The older alluvium, locally known as *Bhangar*, is in the process of denudation. The recent alluvium locally known as *Khadar*, is in the process of building up. Alluvial soils differ widely in texture and consistency, ranging from sands through loams fine silt and heavy clay. Older alluvium is of more clayey composition, generally dark coloured and full of lime nodules, called *Kankar*. Newer alluvium, on the other hand, is sandy, generally light coloured and of less *Kankar* composition.

Alluvial soils exhibit wide spread deficiencies of plant nutrients and suffer from general physical defects. Marked deficiency of nitrogen and humus is caused by the fact that high temperature leads to quick decomposition of organic matter. Most of the phosphorus found in these soils is present in inorganic forms, especially calcium phosphates. This difficulty is further accentuated in case of calcareous soils because their calcareous nature hastens the conversion of applied phosphates also into more insoluble forms of calcium phosphates. The total amount of potash in these soils is generally adequate but there are indications of frequently high fixation of it. Thus balanced use of NPK is considered desirable for obtaining high yields of crops on these soils. This is corroborated by information

Extent of area of the soil groups of India

TABLE IV

Sl. No.	Soil groups	Area: Sq. kilometres	Area: Million acres
1&2	Alluvial soil, riverine, old and recent; non-saline, non-calcareous to moderately calcareous	1,012,000	200.00
3.	Alluvial soil, riverine, highly calcareous	89,000	22.00
4.	Soil developed on coastal alluvium, occasionally saline	85,000	21.00
5.	Soil developed on deltaic alluvium, occasionally saline	180,000	44.48
6.	Alluvial soil, riverine, affected by salinity and alkalinity	68,000	16.80
7.	Pedocal sierozem of alluvial origin	40,500	10.00
8.	Pedocal brown and soil of alluvial origin	34,000	8.48
9.	Grey brown (Desert) soil	36,400	9.00
10.	Desert soil	106,000	26.19
11.	Deep black soil	68,800	17.01
12.	Medium black soil	214,500	53.00
13.	Shallow black soil	58,500	14.46
14.	Black soil affected by salinity and alkalinity	69,000	17.05
15.	Black soil undifferentiated	135,000	33.36
16.	Mixed black and red soil	115,000	28.42
17.	Ferruginous red soil	90,800	22.44
18.	Ferruginous red and gravelly soil	60,500	14.05
19.	Red and yellow soil	198,000	48.93
20.	Laterite	128,000	31.63
21.	Laterite and lateritic soil	120,200	29.71
22.	Brown soil (under deciduous forest)	26,200	6.48
23.	Forest soil	164,700	40.71
24.	Podsolic soil	36,400	9.00
25.	Foot-hill/*Terai* soil	46,600	14.00
26.	Mountain and hill soil	13,300*	3.29*
27.	Mountain meadow soil	11,700	2.89
28.	Peat	150	0.04
29.	Eternal snow	48,984	12.10

*Including Sikkim and Bhutan.

relating to responsiveness of yield to applications of fertilizers available from experiments conducted on farmers' fields.

Deficiencies of micro-nutrients have also been observed. The sandy soils of this group are reported to be deficient in sulphur. Deficiencies of zinc, iron and manganese are not uncommon. Besides, it is felt that boron may be present in toxic amounts, particularly, in saline-alkali soils of this group. Deficiencies of micro-nutrients may become more marked with the increases in yields resulting from the extended use of high-yielding varieties and greater application of water and NPK.

Some of the soils in this group show certain defects with regard to their physical properties. There is occurrence of hard pan, clay pan and caliche pan which impede penetration of plant roots and percolation of water. High bulk density has adverse effect on yields in some of the areas like the serozem belt of the alluvial soils of the Punjab, Rajasthan and Gujarat, which grow much of American cotton. Fairly extensive areas are affected by problems of water logging and salinity and alkalinity.

Black Soils : This is the second largest group of soils, covering an area of about 5.5 lakh km. These soils have developed over the lava deposits of Deccan trap and are locally known as *Regur*. The black soils are derived from two types of rocks, the Deccan and the Rajmahal trap ferruginous gneiss and schists occurring in the state of Tamil Nadu under semi-arid conditions. This group of soils is found in central and western Madhya Pradesh, southern Orissa, southern and coastal Andhra Pradesh, northern Karnataka and almost the whole of Maharashtra. They also occur in parts of Gujarat, Rajasthan, Uttar Pradesh and Tamil Nadu.

The black soils have predominantly clayey character. They are highly sticky in character, with better moisture retaining capacity. They are difficult to plough when wet because of stickiness. The presence of montmorillonite type of clay minerals imparts the property of high expansion and shrinkage to these soils. They crack during hot dry weather and are thus "self-ploughing". These soils are generally rich in potash, iron, lime, etc., but deficient in nitrogen, phosphoric acid and organic matter. Defficiency of zinc is also observed. A major problem with these soils is their bad structure. They have to be worked at the proper moisture level. Otherwise, their structure is spoilt. Some of these soils also suffer from salinity and alkalinity and present drainage difficulties. These soils are locally known as *Chopan*.

Red Soils : These soils cover an area of about 3.5 lakh km. They have developed from the weathering of the ancient crystalline metamorphic rocks. They consist largely of granites,

gneisses and schists with subordinate rocks rich in ferro-magnesium minerals. These soils occur in large parts of Tamil Nadu, Karnataka, north-east Andhra Pradesh, south-east Maharashtra, Madhya Pradesh, Orissa and Chota Nagpur. They are also found in the Santhal Parganas of Bihar, certain districts of West Bengal, Uttar Pradesh and Rajasthan, and Khasi, Jaintia, Garo and Naga Hills of Assam.

Texturally, red soils are sandy to loamy and even gravelly on the upper slopes of the river valleys. They are generally porous with lesser moisture retaining capacity. There is absence of lime *Kankar* and free carbonates. Soluble salts are present in a small quantity. The reaction is neutral to acidic. These soils differ greatly in depth and fertility. There is general deficiency of nitrogen humus, phosphoric acid and lime. The predominance of kaolinitic clay minerals leads to high phosphate fixation.

Laterite and Lateritic Soils : These soils are peculiar to India and other countries with tropical climate characterized by high temperature and high rainfall with alternating wet and dry periods. Some recent writers would confine the term laterite to an already hardened, perhaps fossil, layer but laterite crust is not necessarily the end product of soil evolution as implied in many studies. To avoid confusion caused by different meanings attached to this term, Bunting suggested "perhaps it would be best to abandon the term laterite for a native term such as *Murram* or *Khoai* (West Bengal) and *Bowal* (Guinea)". In India also the use of the term laterite does not conform to standard terminology; and the term lateritic has been used as a hedge to include soils about which precise knowledge was lacking.

Laterite and lateritic soils cover an area of about 2.5 lakh km. Lateritic soils are specially well developed on the hill tops of the Deccan, Karnataka, Kerala, Madhya Pradesh, the Eastern Ghats of Orissa, Maharashtra, Malabar and parts of Assam. In Tamil Nadu, there are both high level and low level lateritics which are formed from a variety of rocks.

Laterite soils are characterized by the presence of a compact to vesicular mass in the sub-soil horizons, composed essentially of a mixture of hydrated oxides of iron and aluminium. There is separation of iron oxide in the form of nodules, and the gradual cementation of the latter to form an indurated honeycombed mass.

The texture of the soils in this group ranges from heavy loams to clay. These soils are usually deficient in nitrogen, phosphoric acid, potash, lime and magnesium. Although they are low in fertility, there is good response to manuring and soil management. Valley soils can yield good crops of rice and sugarcane.

5. Other Soils : Four more soil groups can be distinguished among the remaining soils in the country. Largest among them are forest soils covering an area of about 2.9 lakh km. These soils are characterized by the deposition of the organio matter derived from forest growth. These soils are found in Himachal Pradesh, sub-Himalayan tract of Uttar Pradesh, hilly districts of Assam, Darjeeling district, Coorg and Malabar district. Second important soil group consists of desert soils covering an area of about 1.4 lakh km. distributed over arid and semi-arid region of the Punjab and Rajasthan. These tracts are covered by a mantle of blown sand which impedes soils development. The third group of saline and alkali soils is the result of concentration of salts owing cheifly to lack of underground drainage. Capillarity action during summer brings them to the surface where they form a white efflorescent crust. These soils are known under various local names, *viz.*, *Reh*, *Kallar* and *Usar*. Large areas of land in the Punjab, Uttar Pradesh, Maharashtra and Gujarat have been rendered infertile by saline and alkaline effervescences. The fourth group of soils comprises peaty and other organic soils. Typical peaty saline soil is found in Kuttanad in Kerala, where it is known under the local name of *Kari* and cover an area of about 150 km.

Climatic Conditions : India is characterized by essentially a tropical climate. Although the northern part of India falls into the subtropical zone, it is protected from cold winter winds by the great mountain wall of the Himalaya. Monsoons impart a distinctive character to India's climate. The effects of temperature and rainfall conditions on agriculture are discussed below:

Temperature : High temparature has adverse effects on the humus content of soils. High temperatures also increase water losses of soils. Besides, warm and humid weather stimulates the growth of weeds which compete with crop nutrients and pests that thrive on plant life. Otherwise temperature is not considered to be a serious limitation on growth of plants in India. Sunlight is adequate for the efficient growth of crops. Sunny days are generally sufficient and quite evenly spread over the year in different parts of the country. The length of the growing season presents no problem in most parts of the country. This is a very great natural advantage as compared to the countries with temperate climate.

Rainfall : India's major handicap is rainfall. High temperature increases loss of water through evaporation and transpiration. Actual rainfall is thus rendered inadequate over vast regions. Besides, rainfall is unevenly spread over the year. The erratic nature of monsoons leads to the spectres of famines and floods. In the absence of data on losses of moisture through evaporation and

transpiration, it is not possible to map out precisely areas of deficient rainfall. But a rough estimate is as follow :

		Net area sown (Thousand hectares)
1.	High Rainfall regions (1150 mm. and above)	41,689
2.	Medium Rainfall regions (750-1150 mm.)	49,308
3.	Low Rainfall regions (upto 750 mm.)	47,123
	Total	138,120

The above figures emphasize the need for evolving suitable dry farming techniques to step up agricultural output in vast areas characterized by deficient rainfall. Research work in this direction was initiated in the erstwhile Bombay province in 1926. The need for such efforts has been greatly intensified by the recent introduction of high yielding varieties which require more water than ordinary varieties of crops. Regional imbalance will be aggravated if areas of deficient rainfall lag behind in agricultural development. Thus, the imperative need for increasing agricultural output as well as the desirability of balanced regional development underline the urgent necessity of evolving suitable varieties and adopting appropriate agricultural practices in regions of inadequate rainfall.

III. Land Utilization

Before independence, the total geographical area of India was classified into the following five broad heads for purposes of land utilization statistics:

1. Area under forests
2. Area not available for cultivation
3. Uncultivated land excluding current fallows
4. Area under current fallows
5. Net area sown

In 1947, when the country became free, the erstwhile princely regions were merged with the former provinces and intermediate tenures like zamindari, etc., were abolished. Detailed land surveys had not been carried out in these areas in the past. The then available data were defective, because it gave no idea of the potential capacity of land for various uses, or even for potential supply of land for extension of cultivation. To get a better picture of the potentialities for land development for cultivation, as well as non-agricultural purposes, a land survey was undertaken in 1949-50.

Standard definitions of the various classes of land were evolved to be followed by all States. Prior to this, the available data were not comparable, because definitions of land classes among different States were not uniform.

There used to be a considerable time lag in the publication of the land utilization data, which has now been reduced from five to three years. There was no clear and meaningful distinction between culturable waste and fallow land; and between cultivable land and culturable waste. The classification suggested for immediate adoption with a view to facilitating accurate assessment of potential area available for cultivation, for grazing, for forest and tree growing etc., is as under:

1. Forests
2. Land not available for cultivation;
   - (i) land put to non-agricultural uses;
   - (ii) barren and unculturable land;
   - (iii) permanent pastures and other grazing lands;
   - (iv) miscellaneous tree crops and groves not included in the net area sown;
   - (v) cultivable waste;
   - (vi) fallow land other than current fallows;
   - (vii) current fallows.
3. Net area sown.

Data are also available regarding the area on which more than one crop is harvested in a year. This land is classed as "double cropped area" or "area sown more than once". Gross cropped area consists of net area sown plus area cropped more than once.

Detailed statistics of land use which mainly give the area of land put to different agricultural uses are available almost continuously from 1887-88. The present coverage of land use and crop statistics is about 94 per cent of the total geographical area of the country—77 per cent covered by complete enumeration, 5 per cent by sample surveys and another 12 per cent by conventional estimates. Since the remaining non-reporting area of 6 per cent is mainly covered by hills and forests and there is very little cultivation on it, the present position of land use in the country could be considered quite satisfactory although there is still scope for improvement.

The reporting area which stands for the area for which data on land use classification are available, has considerably increased from 284.3 million hectares in 1950-51 to 305.8 million hectares in 1968-69, i.e. from 87 to 94 per cent (Table V). Where land utilization figures are based on land records, reporting area is the one according to papers prepared by the village accountant. In some cases, the village papers may not be maintained in respect of the entire area of

the State. For example, such papers may not be prepared for the forest area, but the marginal role of such area is known. Also, there are tracts in many states for which no village papers exist but for which *ad hoc* estimates of classification of area are framed to complete the coverage. In such cases, this gives the summation of the area for which village papers actually exist and the area for which *ad hoc* estimates are available.

Forests : Area under forests includes all actually forested areas or lands classed or administered as forests under any legal enactment dealing with forests whether State owned or private. If any portion of such land is not actually wooded but put to some agricultural use, that portion is included under the appropriate head of cultivated or uncultivated land. Forest statistics are collected by the Forest Department in a State and published in the Indian Forest Statistics. Agriculture or Revenue Departments also collect forest statistics, but the two sets of figures do not tally. Some of the reasons for the same are:

(a) Certain lands not covered by forests but worked by Forest Department, are counted as forests by the Forest Department and included in the area under forests. The same are not treated as forests by the Revenue/Agriculture Department, and are put under any of the other heads such as "other uncultivated land excluding fallow lands", if they are covered with shrubs, bamboos or other grasses and under "net area sown" if they are cultivated.

(b) Forest areas deemed to be "unprofitable" and some of the areas administered as forests by corporate bodies or private individuals are sometimes classified by some States as "area not available for cultivation" or "other uncultivated land excluding fallow lands."

(c) Difference in coverage both in respect of period and area.

(d) Difference in the method followed by the two Departments in the enumeration of the forest areas.

Land not available for Cultivation : This consists of two parts. (1) Land put to non-agricultural uses—These are lands occupied by buildings, industrial undertakings, roads and railways or those under water *e.g.* rivers and canals, and all other lands put to non-agricultural uses. As in India, urbanization and industrialization lead to an increase in the area under this category. (2) Barren and uncultivated land—This covers all barren and uncultivated lands like mountains, deserts, etc. In Rajasthan, such lands lie mostly in the Thar desert, where the soil is sandy and rainfall is below 50 cm. In other States, they are generally in areas where the topography is hilly and/or is covered with laterites or such soils as are highly infertile, stony and coarse and the rainfall is insufficient so that

it is hardly possible to develop or cultivate these lands on a reasonable cost.

Other Uncultivated Lands excluding Fallow Lands

(a) **Culturable Waste** : These include lands available for cultivation whether or not taken up for cultivation or abandoned after a few years for one reason or another. Such land may either be fallow or covered with shurbs or jungles which are not put to any use. Land once cultivated, but not cultivated for five years in succession is included in this category. It is a sort of residual class which includes all uncultivated lands not accounted for by any other class. Over 6 million hectares of land have been taken out of this category. It is a potential area for cultivation, though it would be a misnomer to describe that all the land under this category is 'culturable'. A Waste Land Survey Committee went into this matter in 1959 and studied the position for 7 important States in the country. Land available for cultivation in holdings over 100 hectares was estimated by the Committee at 4,50,000 hectares. Another survey for locating culturable waste lands in smaller blocks was taken up during the Third Plan. An additional area of 2.2 million hectares has been located which will be available for cultivation in the coming five years.

(b) **Permanent Pastures and other Grazing Lands** : These include all grazing lands, whether they are permanent pastures or meadows. The common land—*shamlat*—in the villages and grazing land in the forest area, are included under this head. These lands have tended to increase during the last one and a half decades, partly because in certain states there is a legal provision to maintain a minimum area for grazing cattle. The increase has been particularly noticeable in Maharashtra and Gujarat.

(c) **Land under Miscellaneous Tree Crops, etc** : All the culturable land put to some agricultural use, but not included under net area sown is included under this head. Lands under thatching grass, bamboo bushes and other grove trees for fuel etc., which are not included under (a) or (b), are placed in this category. Land under this category has decreased from 19.8 million hectares in 1950-51 to only 4.1 million hectares in 1968-69.

Fallow Lands : This category can be divided into two sub-groups : (a) fallow lands other than current fallows, and (b) current fallows.

(a) **Fallow Lands other than Current Fallows** : This includes lands which were taken up for cultivation, but are temporarily out of cultivation for a period of not less than one year and not more than

five years. The causes for such lands going out of cultivation may be :

1. Inability of farmers to cultivate for lack of means.
2. Inadequate irrigation facilities.
3. Unsuitable climate.
4. Unremunerative nature of farming.

About 7 per cent of the total geographical area of the country is still constituted as fallow land, though it was considerably reduced from 28.1 million hectares in 1950-51 to 20.8 million hectares in 1967-68. There was an increase of 2.2 million hectares during 1968-69 which was primarily due to bad weather conditions. Poor fertility is the major cause for land becoming fallow and much of it, in course of time, may be added to the category of 'cultivable waste'.

(b) **Current Fallows** : This class comprises cropped areas which are kept fallow during the current year. For example, if any planted area in the last season is not cropped again in the year reported, it is treated as current fallow. There is, however, a close link between the fallow land and the net area sown, since there are frequent shift-overs from one to the other. Good and timely rainfall, weather conditions, prices, political stability, security of tenure and tenancy conditions help in increasing the area sown.

Net Area Sown : It is the actual physical area under crops and orchards. Areas cropped more than once are counted only once in this category. This area has steadily increased from 118.7 million hectares in 1950-51 to 139.7 million hectares in 1967-68 (Table V). This addition has been possible because of land reclamation operations, reduction in fallow lands and appreciable decline in culturable waste, as a result of virgin lands coming under cultivation on account of new irrigation projects, adoption of soil conservation measures, etc. It is quite possible that net sown area may continue to increase as a result of the operation of these factors. Assuming that annual net sown area is of the order of a million hectares, it can be estimated that there is in the country today an area of about 143 million hectares as net sown which will constitute about 43 per cent of the total geographical area in the country.

India today is perhaps one of those countries where arable land under permanent crops constitute the maximum proportion of the total area in the country. During the year 1967, area under this classification in India was as much as 50 per cent against a figure of 32.2 per cent for Yugoslavia, 30.3 per cent for the United Kingdom, 29.8 per cent for Pakistan, and as low a figure as 4.3 per cent for Canada and 5.4 per cent for Australia (Table VI).

TABLE V

Land Utilization Statistics—All-India (1950-51 to 1968-69)

(Million Hectares)

Particulars	*1950-51*	*1955-56*	*1960-51*	*1965-66*	*1966-67*	*1967-68*	*1968-69*
	I. Geographical Area						
Geographical Area	326.8	326.8	326.8	326.8	326.8	326.8	328.0
	II. Classification of Area						
Reporting Area for Land Utilization Statistics	284.3	291.9	298.4	305.3	305.4	305.6	305.8
(i) Forest	40.5	51.3	54.1	60 3	62.2	62.4	62.8
(ii) Not available for cultivation	47 5	58 4	50 7	50.3	48.3	48.1	48.1
(iii) Other uncultivated land excluding fallow lands—							
(a) Cultivable waste	22.9	21.5	19.2	17.2	17.0	16.6	16.5
(b) Permanent pastures and other grazing lands	6.7	11.5	14.0	14.9	14.1	13.9	13.8
(c) Land under miscellaneous trec crops and grooves (not included in net area sown)	19.8	5.9	4.4	4.1	4.1	4.1	4.0
Total	49.4	38 9	37.6	36.2	35.2	34.6	34.3
(iv) Fallow Lands—	28.1	24.1	22.8	22.4	22.6	20.83	23.08
(a) Fallow lands other than current fallows				9.23	8.98	8.78	9 01
(b) Current fallows				13.21	13.62	12.05	14.07
(v) Net Area Sown	118.7	129.2	133.2	136.2	137.2	139.7	137.6
	III. Sown Area						
(a) Gross sown area	131.9	147.3	152 8	155.3	156.8	163.1	159.2
(b) Net sown area	118 7	129 2	133.2	136.2	137.2	139.7	137.6
(c) Area sown more than once (a)-(b)	13.2	18.1	19.6	19.1	19 6	23.3	21.6

TABLE VI

Land Utilization—Selected Countries of the World

(Million Hectares)

Country	*Year*	*Total area*	*Land area*	*Agricultural Area*			*Other Area*	
				Arable land and land under permanent crops	*Permanent meadows and pastures*	*Forested land*	*Unused but potentially productive*	*Built-on area waste land and other*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
United Kingdom	1968	24,403 (100)	24,093 (98.7)	7,382 (30.3)	12 032 (49.3)	1,859 (7.6)	—	3,130 (12.8)
Yugoslavia	1968	25,580 (100)	—	8,246 (32.2)	6,420 (25.1)	8,812 (34.4)	—	2,102 (8.2)
U.S.S.R.	1968	2,240,220 (100)	—	224,000 (100.0)	373,700 (16.7)	910,009 (40.6)	—	732,211 (32.7)
Canada	1966	997,614 (100)	922,081 (92.4)	43,404 (4.3)	20.957 (2.1)	443,094 (44.4)	—	490,159 (49.1)
Mexico	1960	197,255 (100)	197,234 (100.0)	23,817 (12.1)	79,092 (40.1)	43,679 (22.1)	11,193 (5.7)	— 39,474 (20.0)
Netherlands Antilles	1951	96 (100)	96 (100.0)	5 (5.2)	— —	— —	— —	— 91 (94.8)

Argentina	1968	277,666 (100)	—	33,007 (11.9)	144,947 (52.2)	62,700 (22.6)	—	37,012 (13.3)	
Chile	1965	75,694 (100)	—	4,511 (6.0)	10,083 (13.3)	20,686 (27.3)	2,271 (3.0)	—	
Afghanistan	1967	64,750 (100)	—	7,844 (12.1)	6,000 (9.3)	2,000 (3.1)	—	48,906 (75.5)	
Burma	1966	67,803 (100)	—	16,087 (23.7)	354 (0.3)	45,274 (66,8)	—	6,088 (9.0)	
Ceylon	1968	6,561 (100)	6,474 (98.7)	1,980 (30.2)	439 (6.7)	2,899 (44.2)	119 (1.8)	—	1,124 (1.7)
China (Taiwan)	1968	3,596 (100)	3,536 (98,3)	900 (25.0)	2 (neg.)	2,224 (61.8)	—	470 (13.1)	
Hong Kong	1968	103 (100)	103 (100)	13 (12 6)	—	11 (10.7)	45 (43.7)	—	34 (33.0)
Indonesia	1963	190,434 (100)	—	12,697 (6.7)	56 (neg.)	152,177 (79.9)	—	—	
Iraq	1964	43,492 (100)	—	7,496 (17.2)	4,264 (9.8)	1,951 (4.5)	—	29,781 (68,4)	
Israel	1968	2,070 (100)	2.026 (97.9)	411 (19.9)	818 (39.5)	104 (5.0)	—	4.737 (35.6)	
Japan	1968	36,976 (100)	—	5,684 (15.3)	948 (2.6)	25,558 (69.1)	—	4,786 (12.9)	
Pakistan	1965	94,672 (100)	—	28,214 (29.8)	—	4,185 (4.4)	—	—	
Australia	1967	768,681 (100)	—	41,461 (5.4)	448,108 (58.2)	35.473 (4.6)	—	243,639 (31.7)	
India	1967	326,810 (100)	—	163.720 (50 0)	14,070 (4.3)	60,500 (18.5)	17,050 (5.2)	—	71,470 (21.9)

Source : F.A.O. Production Year-book, 1969.

Area Sown more than once : This represents that portion of the net sown area on which two or more crops are grown during the period of one agriculture year. With the introduction of high yielding varieties and the programme of multiple cropping, there is likely to be an appreciable increase in the area under this category. During the period 1950-51 to 1967-68 there was an increase of nearly 10 million hectares. During 1950-51 it was only 13.2 million hectares. The present trend is not to give any vacation to the land. Raising three or even four crops in a year is a sound farming practice. Intensive use of land is nothing new to the farming world. Farmers of Taiwan make every 40 hectares work for about 72 hectares in a year, those of South Korea about 61 hectares and Japan about 48.5 hectares.

The Indian Agricultural Research Institute, New Delhi, has taken four crops—*moong*, maize, potato and wheat—under scientific management. In 1969-70, a total hectare yield of 15.2 tonnes was obtained in 355 days. This works out to 42.8 kg. per day per hectare. These yields are roughly five times more than those obtained in 1940 in fallow-wheat sequence and three times more than from maize-wheat rotation in 1950.

Plant breeders have evolved short duration and photo-insensitive dwarf varieties. Rice, wheat, maize, *bajra*, pulses, potatoes and several other crops have been improved this way. They can now be raised in non-traditional seasons. For instance, the relay cropping of *Moong Baisakhi* sown in summer instead of in monsoon yields 10 quintals a hectare though the traditional monsoon sown *moong* yields only 2.5 quintals. In the following *rabi*. a hybrid or a composite maize can be grown instead of in *kharif*. This maize will yield about 73 quintals of grain. This can be followed by *Sharbati Sonora* wheat giving about 86.5 quintals. One advantage of relay cropping is that it cuts tillage operations down.

IV. Irrigation

Plants require moisture during germination, growth and formation of fruits. Most annual plants cease to need moisture towards the end of their life cycle, when they wither and dry away. Perennial tree crops need moisture throughout their life. Crops can be grown without soil, but not without water.

Human efforts to fight nature's niggardliness in the supply of water to agriculture takes the form of irrigation in the first attempt. A major function of irrigation is to mitigate the impact of irregular, uneven and inadequate rainfall with wide fluctuations from year to year. It averts serious famine and semi-famine conditions. It also supplements supply of rain water, particularly in a country like

India where rainfall is concentrated in most regions in the monsoon months of June to September (Table VII). This additional supply of water makes possible harvesting of two or three crops or cultivation of crops requiring perennial water supply. Irrigation has assumed increasing significance under Indian agriculture in the context of the new technology where high yielding varieties and multiple cropping patterns are being adopted.

In most parts of India, moisture is a great limiting factor in the successful raising of crops. For successful farming, irrigation is, therefore, necessary in one form or the other in all parts of the country where the mean annual rainfall is less than 75 cm. It is indispensable for the economical use of land. When irrigation is provided, both land and labour can be put to profitable use throughout the year; crop yields can also be doubled and money return increased by growing valuable cash crops.

Irrigation has been practised by man for several millennia. Perhaps the earliest irrigation started in Egypt on the river Nile, and there are indications of irrigation as early as 5000 B.C. There is evidence of a masonry dam having been constructed across the Nile in about the year 4000 B.C. From the numerous references available, the use of artificial irrigation in India can be traced to as early a period as the fourth millenium B.C. In the Vedas, the earliest sacred books of the Aryans, mention is made of wells, canals and dams.

During the excavation by the Archaeological Survey of India at Besnagar near Bhilsa in Gwalior, remains of an old irrigation canal which is supposed to have existed there during the third century B.C. or probably earlier were exhumed. Similarly, there is a notable example of the construction of the Grand Anicut across the Cauvery about the second century A.D. which was remodelled by the British during the 19th century.

Some of the existing canal systems are also believed to be centuries old. Archaeological excavations in cities of Harappa and Mohanjodaro have revealed indications of existence of canals dating as far back as 1,500 B. C. Probably, these canals supplied water to serve both the purposes, to supplement supply of monsoon water and also to fight arid and semi-arid conditions. Importance of irrigation as a source of artificial water supply was thus understood long ago. During the second half of 19th century, frequent and severe famines compelled the Government to consider seriously major extension of irrigation water supply. In pursuance of this objective an Irrigation Commission was appointed in 1901. Its Report became available in 1905. The Commission, for the first time, studied the irrigation potential for extensive areas of several river basins, indicated their

TABLE VII

Region-wise Actual Rainfall—1970-71

(Centimetres)

Rainfall Region	*June 1st to September 30 1970*	*June 1970 to May 1971*	*2 as % of 3*
(1)	(2)	(3)	(4)
Bay Islands	1,511	3,060	49.4
North Assam (including NEFA)	1,569	2,102	74.6
South Assam (including Nagaland, Manipur and Tripura)	1,495	2,425	61.6
Sub-Himalayan, West Bengal	2,230	2,730	81.7
Gangetic West Bengal	1,267	1,890	67.0
Orissa	1,129	1,477	76.4
Bihar Plateau	1,044	1,379	75.7
Bihar Plains	944	1,171	80.6
Uttar Pradesh, East	1,075	1,309	82.1
Haryana (including Chandigarh & Delhi)	627	782	80.2
Punjab	525	676	85.1
Himachal Pradesh	1,176	1,482	79.4
Jammu and Kashmir	423	563	75.1
Rajasthan, West	310	358	86.6
Rajasthan, East	739	803	92.0
Madhya Pradesh, West	1,089	1,136	95.9
Madhya Pradesh, East	1,335	1,506	88.6
Gujarat region (including Daman, Dadra & Nagar Haveli)	1,173	1,188	98.7
Saurashtra & Kutch (including Diu)	829	844	98.2
Konkan (including Goa)	2,681	2,764	97.0
Madhya Maharashtra	541	677	79.9
Marathwada	895	1,001	89.4
Vidarbha	1,167	1,271	91.8
Coastal Andhra Pradesh	617	1,022	60.4
Telangana	981	1,150	85.3
Rayalaseema	525	775	67.7
Tamil Nadu (including Pondicherry)	285	938	30.4
Coastal Mysore	3,963	4,466	88.7
Interior Mysore, North	696	892	78.0
Interior Mysore, South	300	728	45.3
Kerala	1,609	2,734	58.9
Arabian Sea Islands	1,214	1,840	66.0

relative importance and laid down the principles governing investment in irrigation. During the following three decades major irrigation works were constructed. The Government, however, adopted a classification of irrigation works which led it to give preference to irrigation in regions where it would play a dominant role in extending cultivation. This policy resulted in restricting extension of irrigation and in concentrating the benefits to selected areas.

The Government classified irrigation works as : (i) productive, and (ii) protective. All works which did not yield revenue enough to meet interest charges after deducting cost were classed protective and only limited resources were committed to them. Studies of irrigation during the last two decades emphasized the indirect social benefits in the form of increased incomes, employment and foreign exchange earnings, with the result that the old classification was dropped and only the administrative classification of (i) major and medium, and (ii) minor irrigation works, was adopted. Upto the year 1964, the Plan schemes costing upto Rs. 10 lakhs were called minor schemes : the ceiling has since been raised to Rs. 15 lakhs. Schemes costing upto Rs. 5 crores are desginated as medium and those over Rs. 5 crores as major ones.

Irrigation Potential : No scientific hydrographic study of India's water resources has so far been undertaken. Rough estimates have been made from time to time which provide only a broad and approximate basis of launching irrigation schemes. In 1903, the Irrigation Commission estimated that the river water resources of the country were of the order of 145 million hectare metres. In 1949, a study estimated that the surface flow of water in the country was about 169 million hectare metres. But owing to physiographical conditions of the country, only one-third of this surface flow or about 561 million hectare metres could alone be used for irrigation purposes and about 45 million hectares could be irrigated. Since there is a good deal of confusion about the data on irrigation potential, periodical surveys in this respect are likely to be undertaken soon.

Surface Water : The average annual surface water resources of India are now placed at a total of about 168 million hectare metres. Of this, only about 56 million hectare metres can be used for irrigation on account of physiographical conditions. Upto 1951, 9.5 million hectare metres or about one-sixth of the usable flow had been utilized. By the end of the Third Plan, the volume of utilization increased to 18.5 million hectare metres or nearly one-third of total availability. It is estimated that during 1966—69, the utilization is estimated to have increased by another 2 million hectare metres. It is proposed, during the Fourth Plan, to bring about an additional utilization of 5 million hectare metres under major, medium, and

minor schemes, bringing the total utilization to 25.5 million hectare metres or 46 per cent of the usuable flow.

The ultimate area that can be irrigated from major, medium and minor schemes (excluding groundwater) by using 56 million hectare metres of water has been assessed at 60 million hectares.* Further, more intensive investigations in different States might indeed reveal that this figure is somewhat on the low side. For the present, however, the country's irrigation potential may be placed at 45 million hectares through major and medium irrigation and 15 million hectares through minor irrigation. At the beginning of the First Plan, irrigation from major and medium works was 9.7 million hectares and from minor, 6.4 million hectares. The potential expected to be created by 1968-69 from major and medium schemes is 18.6 million hectares and from minor schemes 8·1 million hectares. The balance of potential that can be created is 26 million hectares through major and medium schemes and about 7 million hectares through minor schemes.

Groundwater : It is estimated that about 22 million hectare metres of groundwater can be exploited for irrigation purposes to serve 22 million hectares. At the beginning of the First Plan, 6.5 million hectares had been developed. This increased to 8.2 million hectares at the beginning of the Third Plan. It is expected to reach 10.9 million hectares by 1968-69 leaving a balance of about 11 million hectares (Table VIII).

There is a need to re-examine the underground water resources also. Thus the Indo-Ganga plains are known to be several thousand metres deep and the entire plains are thus capable of being covered by conventional wells or tube-wells for irrigation purposes. The total cropped area of the Punjab, Haryana, Uttar Pradesh and Bihar alone is around 60 million hectares. Then there are large coastal areas of Andhra Pradesh and Tamil Nadu and huge areas of Madhya Pradesh, Maharashtra, Gujarat, etc., which can also be irrigated with the help of underground water. The available figures may thus turn out to be a gross under estimate when a careful study is made.

Progress of Irrigation : A characteristic feature of the Indian irrigation system is that quite a significant part of it is State-operated. There has been considerable progress in the construction of State canals and tube-wells in the last and present century. However, the area irrigated by minor works such as wells and tanks still predominates in the total irrigated area in the country which exceeds that in any other part of the world.

*All irrigation potential and utilization figures mentioned in this chapter refer to gross areas.

TABLE VIII

Development of Irrigation Potential and its Utilization

(Million Hectares)

	Ultimate potential	Upto 1950-51		Upto 1960-61		Upto 1968-69	
		Potential	Utilization	Potential	Utilization	Potential	Utilization
Surface water	60	16.1	16.1	21.0	19.7	26.7	25.1
(i) Major and medium	45	9.7	9.7	14.4	13.1	18.6	17.0
(ii) Minor	15	6.4	6.4	6 6	6 6	8.1	8.1
Groundwater (minor)	22	6.5	6.5	8.2	8.2	10.9	10.9
Total	82	22.6	22 6	29.2	27.9	37.6	36.0

Note : In the case of minor irrigation, utilization has been assumed to be the same as potential, as actual utilization figures are not available.

Source : Fourth Five Year Plan, 1969-74, p. 247.

Irrigation practices in the country can be traced to the prehistoric period although substantial development took place only during the nineteenth century. The pace has further been accelerated during the era of development planning. Irrigated area increased from about less than a million hectares in 1800 to about 22.6 million hectares in 1950-51 on the eve of the First Plan.

India embarked on planned economy in 1951. Although during the years after the Second World War some reconstruction schemes in irrigation were taken up for construction, a dynamic policy for irrigation can be said to have started only with the initiation of the First Plan in 1951. The irrigation development programmes assumed vital importance with the introduction of multi-purpose schemes which combined generation of power with irrigation.

Formerly, the irrigation canals were mostly inundation ones. With the arrangements for acquaducts, water lifts and multi-stage diversion dams, the benefits of irrigation could be made available to areas with varying ground elevations. Generation of power together with canal irrigation, reduced the cost of irrigations and some works which were considered non-paying, became remunerative. There is an addition of nearly 50 per cent in the irrigated area during a period of 17 years from the beginning of the First Five Year Plan (Table IX). This shows that the progress made in a short period of 17 years is roughly equal to half of what could be achieved during a period of one and a half entury.

While the total area under canals has increased only by about 25 per cent, major improvements have taken place in the area under wells. Tube-wells which were more or less non-existant on the eve of the First Five Year Plan, provided irrigation for an area of over 2 million hectares during 1967-68. There has been a phenomenal increase in this area since then.

The popular demand for groundwater schemes, namely, dug-wells, tube-wells and pump sets have been given priority in the past few years as these works provide the nuclei for high yielding varieties, not only in dry areas but also in the canal irrigated areas (the canal supply alone being inadequate for meeting the time bound requirements for irrigation of the high yielding varieties). During 1970-71, about 2.65 lakh electric pump sets, 1 lakh private tube-wells and 1,000 State tube-wells were to be installed. This would mark an advance over the achievement in the previous year, which amounted to installation of about 2.6 lakh electric pump sets, 90,000 private tube-wells and 800 deep tube-wells. In addition, about 1.70 lakh dug-wells were to be constructed during 1970-71.

So far, initial scrutiny from the hydro-geological angle of the groundwater schemes on an area basis has been carried out only

TABLE IX

Irrigated Areas Source-wise : All-India

(Thousand Hectares)

Particulars	*1950-51*	*1955-56*	*1960-61*	*1964-65*	*1965-66*	*1967-68*	*1968-69*
Government canals	7,158	8,025	9,153	9,953	9,827	10,279	
Private canals	1,137	1,360	1,200	1,136	1,133	1,025	
Tanks	3,613	4,423	4,555	4,760	4,441	4,599	
Wells	5,978	6,739	7,284	7,910	8,445	9,264	
Other sources	2,967	211	2,436	2,508	2,595	2,356	
Total net irrigated area	20,853	22,758	24,634	26,267	26,441	27,091	27,864
Gross irrigated area	22,563	25,642	27,941	30,414	30,922	33,014	33,832
Irrigated area sown more than once	1,710	2,884	3,307	4,147	3,481	5,923	5,768

in respect of schemes refinanced by the Agricultural Refinance Corporation. It has been suggested to the State Governments that such scrutiny should also be exercised in the case of schemes financed by Land Development Banks, Central Co-operative Banks and Commercial Banks under their normal programme. Further, the States have been asked to provide boring and drilling facilities to the cultivators on commercial lines.

Central Groundwater Board: The expansion of groundwater development programme called for intensive coordinated efforts for scientific groundwater investigations. An important step in this direction was the creation of the Central Groundwater Board in place of the Exploratory Tube-wells Organization which had been carrying out groundwater exploration for the last 15 years. While the Board will continue to undertake deep drilling wherever it is considered necessary for exploratory purposes, its primary function now onwards will be to conduct resource evaluation studies in representative areas with a view to establishing the limit of safe pumping. The Board will also extend its exploratory activities in hard rock areas. A survey project is being taken up by the Board with the assistance of Canadian International Development Authority in the hard rock areas of Andhra Pradesh. A few more projects are planned to be taken up in other hard rock areas in Maharashtra, Madhya Pradesh and Karnataka.

A project for water resource evaluation of the Narmada Basin is also to be taken up shortly.

Groundwater Organizations in the States: The sharp expansion of groundwater development has called for commensurate organizational efforts. If the States are to take full advantage of the unprecedented opportunities opened up for financing their groundwater development programme, they would have to strengthen immediately their groundwater organizations so as to ensure that not only compact area schemes are drawn up on the basis of scientific hydro-geological data but that such schemes are also sanctioned and implemented expeditiously.

Autonomous Tube-well Corporations: There are certain areas in the country where groundwater is available only at very great depths upto 300 meters and more in some cases—and can therefore be tapped only at a considerable expense. Also, there are several locations where larger river pumping schemes would be far more economical than individual installations. The development of irrigation in such areas as well as in areas where large size community works are needed to cater to the needs of small farmers, can perhaps best be done by autonomous corporations. These corporations can mobilize institutional finances for financing their new additional programmes. Haryana, Punjab and Gujarat have already set up such corporations.

Groundwater Legislation : Considering the situation emerging as a result of the spectacular expansion of groundwater in recent years, the Conference of Commissioners of Agricultural Production 1969, strongly recommended that the Government of India should formulate and circulate a model bill for control and regulation of groundwater. A model bill has been circulated to the States for passing suitable legislation.

Irrigated Area : The latest available data for 1967-68 indicate that gross irrigated area in the country has increased by 46.8 per cent and the percentage of the irrigated area to gross cultivated areas has increased from 17.1 to 20.3 percent during the period 1950-51 to 1967-68 (Table X). Recently there has actually been a good deal of emphasis on minor irrigation as a result of the implementation of the new strategy for agriculture. During the Fourth Plan period, an additional 12.54 lakh tube-wells and pump sets are likely to be energized bringing the total figure to well over 23·37 lakhs as against 5·13 lakhs at the end of the Third Plan. In Tamil Nadu alone, 5.5 lakh irrigation wells representing over one-third of the total number of wells in the country and providing irrigation for over 640,000 hectares have already been connected to power. The Electricity Board proposes to energize, on an average 60 thousand pump sets each year.

About 2 million hectares of additional irrigation potential created under major and medium irrigation projects in the country remains unutilized for one or the other reason. As against 9.7 million hectares of irrigation potential achieved under the Plans upto 1969-70, the potential actually utilized is stated to be only about 7.9 million hectares.

With regard to the distribution of irrigated area, as much as 63.6 per cent of the total cropped area in the Punjab was irrigated during 1967-68. The corresponding figures for Tamil Nadu, Jammu and Kashmir, Andhra Pradesh and Uttar Pradesh were 47.5 per cent, 37.2 per cent, 31.0 per cent and 28.0 per cent respectively. Madhya Pradesh and Maharashtra with 5.9 per cent and 7.7 per cent respectively are at the end of the list of irrigated area. From among all the States, Madhya Pradesh was the only one where the share of gross irrigated in the total cropped area remained unchanged at 5.9 per cent during the planned period of 17 years.

In the increase in the gross irrigated area during this period, Punjab tops the list with an increase of 253.2 per cent followed by Gujarat with 224.7 per cent, Haryana 176.8 per cent and Karnataka by as much as 97.5 per cent. Orissa with 10.8 per cent increase is the lowest on record and next comes Assam with 12.9 per cent followed by Jammu and Kashmir with 14.4 per cent increase (Table XI).

TABLE X

All-India Irrigated Area and Total Area Under Crops

('000 Hectares)

All-India	1950-51	1960-61	1964-65	1967-68
(1) Rice				
Total area	31,056	34,056	36,359	35,983
Irrigated area	9,844	12,523	13,556	13,861
% Irrigated	31.7	36.8	37.3	38.5
Share of the total irrigated area	43.6	44.7	44.2	41.8
(2) Jowar				
Total area	15,554	18,426	18,023	17,902
Irrigated area	473	655	680	707
% Irrigated	3.0	3.6	3.8	3.9
Share of the total irrigated area	2.1	2.3	2.2	2.1
(3) Wheat				
Total area	10,010	12,931	13,453	14,854
Irrigated area	3,256	4,233	4,945	6,457
% Irrigated	32.5	32.7	36 8	43.5
Share of the total irrigated area	14.4	15.1	16.1	19.5
(4) Other Cereals				
Total area	5,576	4,997	4,803	5,075
Irrigated area	248	113	108	199
% Irrigated	4.4	2.3	2.2	2.3
Share of the total irrigated area	1.1	0.4	0.3	0.4
(5) Pulses				
Total area	2,228	2,429	2,560	2,654
Irrigated area	11	12	14	12
% Irrigated	0.5	0.5	0.6	0.5
Share of the total irrigated area	0.1	0.04	0.1	0.04
(6) Total Foodgrains				
Total area	101,196	115,564	118,419	121,079
Irrigated area	18,317	22,055	23,443	26,104
% Irrigated	18.1	19.1	20.2	21.6
Share of the total irrigated area	81.2	78.9	78.0	78.8
(7) Cotton				
Total area	5,655	7,610	8,359	7,715
Irrigated area	465	967	1,292	1,285
% Irrigated	8.2	12.7	15.4	16.6
Share of the total irrigated area	2.1	3.5	4.2	3.9
(8) Ground-nut				
Total area	4,406	6,467	7,375	7,709
Irrigated area	—	195	217	413
% Irrigated		0.7	0.7	1.2
(9) Sugar-cane				
Total area	1,757	2,417	2,606	2,069
Irrigated area	1,183	1,674	1,862	1,530
% Irrigated	67.3	69.3	41.3	73.9
Share of the total irrigated area	5.2	6.0	6.1	4.6
(10) Total				
Total area	131,893	152,772	159,229	163,026
Irrigated area	22,563	27,980	30,704	33.152
% Irrigated	17.1	18.3	10.0	20.3

TABLE XI

Area Sown and Irrigated State-wise—1950-51 and 1967-68

Area : '000 Hectares

States	Year	Area Sown		% Change in total Gross Area Sown	Area Irrigated		% Charge in Gross Area Irrigated	7 as % of 4
		Net	Gross		Net	Gross		
1	2	3	4	5	6	7	8	9
Andhra Pradesh	1950-51	9,806	10,631		2,318	2,507		23.5
	1967-68	11,367	12,794	(+) 20.3	3,089	3,972	(+) 58.4	31.0
Assam	1950-51	2,225	2,555		542	542		21.2
	1967-68	2,393	2,907	(+) 13.8	612	612	(+) 12.9	21.1
Bihar	1950-51	8,541	10,508		2,078	2,078		19.8
	1967-68	8,284	10,895	(+) 3.7	2,011	2,461	(+) 18.4	22.6
Gujarat	1950-51	6,910	7,195		350	359		5.0
	1967-68	9,802	10,420	(+) 44.8	1,108	1,166	(+) 224.7	11.2
Haryana	1950-51	2,982	3,470		568	643		18.5
	1967-68	3,514	5,150	(+) 48.4	1,132	1,780	(+) 176.8	34.6
Jammu and Kashmir	1950-51	621	647		261	263		40.6
	1967-68	675	808	(+) 24.9	278	301	(+) 14.4	37.2
Kerala	1950-51	1,736	2,013		301	321		15.9
	1967-68	2,129	2,758	(+) 37.0	411	572	(+) 78.2	20.7
Madhya Pradesh	1950-51	14,014	15,390		892	909		5.9
	1967-68	17,797	19,653	(+) 27.7	1,143	1,162	(+) 27.8	5.9
Maharashtra	1950-51	16,298	16,744		801	888		5.3
	1967-68	18,267	19,197	(+) 14.7	1,476	1,481	(+) 66.8	7.7
Karnataka	1950-51	9,326	9,604		613	617		6.4
	1967-68	9,987	10,417	(+) 8.5	1,082	1,219	(+) 97.5	11.7

(Contd.)

TABLE XI (*Contd.*)

Area Sown and Irrigated State-wise—1950-51 and 1967-68

Area : '000 Hectares

States	Year	Area Sown		% Change in total Gross Area Sown	Area Irrigated		% Change in Gross Area Irrigated	7 as % of 4
		Net	Gross		Net	Gross		
1	2	3	4	5	6	7	8	9
Orissa	1950-51	5,657	5,991		1,019	1,029		17.2
	1967-68	5,989	7,446	(+) 24.3	977	1,141	(+) 10.8	15.3
Punjab	1950-51	3,822	4,589		1,245	1,368		29.8
	1967-68	3,992	5,441	(+) 18 6	2,333	3,464	(+) 253.2	63.6
Rajasthan	1950-51	9,715	10,218		1,191	1,316		12.8
	1967-68	15,097	16,657	(+) 63.0	1,865	2,141	(+) 62.6	12.8
Tamil Nadu	1950-51	5,107	5,804		1,181	2,216		38.1
	1967-68	6,085	7,309	(+) 25.9	2,629	3,476	(+) 56 8	47.5
Uttar Pradesh	1950-51	16,231	19,960		4,840	5,219		26.1
	1967-68	17,467	22,709	(+) 13 8	5,657	6,352	(+) 21.7	28.0
West Bengal	1950-51	5,156	5,773		1,176	1,195		20.7
	1967-68	5,569	6,653	(+) 15.2	1,473	1,499	(+) 25.4	22.5
Other States	1950-51	599	798		70	98		12.3
	1967-68	1,290	1,797	(+) 125.1	242	333	(+) 239.8	18.5
Total India	1950-51	1,18,745	1,31,891		20,853	22,563		17.1
	1967-68	1,39,702	1,63,026	(+) 23.6	27,523	33,132	(+) 46.8	20.3

Crops Irrigated : There has been a good deal of change in the utilization of irrigation as between various crops, although the share of foodgrains in the total irrigated area of the country was reduced from 81.2 per cent in 1950 to 78.8 in 1967-68. Cotton improved its position during this period from 2.1 to 4 per cent but other cash crops failed to attract irrigation facilities. While the share of rice declined from 43.6 to 41.8 per cent, that of wheat improved from 14.4 to 19.5 per cent during this period. The position with regard to coarse grains and pulses, however, remained as bad as before. The share of irrigated area during 1967-68 under wheat has steadily increased to 43.5 per cent against 38.5 per cent for rice and 26.1 per cent for all foodgrains. From among the cash crops, sugar-cane had 73.9 per cent of the area irrigated followed by cotton at 16.6 per cent during 1967-68.

Tamil Nadu and Andhra Pradesh were the only two States in the country where over 90 per cent of rice was irrigated in 1967-68. Next were Jammu and Kashmir and the Punjab with 86.8 per cent and 81.8 per cent respectively. With regard to irrigated wheat, the Punjab again topped the list with 70 per cent followed by Gujarat with 63.8 per cent, Haryana 60.5 per cent, Rajasthan 59.8 per cent and Uttar Pradesh 50.9 per cent against the all-India figure of 43.1 per cent. In respect of all foodgrains too there were only three States, Punjab, Tamil Nadu and Kerala where over 50 per cent of the area under foodgrains was irrigated. Corresponding figures for Andhra Pradesh were 37.3 per cent, Haryana 30.3 per cent, Jammu and Kashmir 32.7 per cent and Uttar Pradesh 26.3 per cent. Madhya Pradesh and Maharashtra were the only two States where the share of irrigated area in total foodgrains was only 6.1 and 7.1 per cent respectively.

Sugar-cane is another important crop where 100 per cent of the area was irrigated in Karnataka and over 95 per cent in Tamil Nadu, Rajasthan, Maharashtra, Gujarat and Andhra Pradesh. Bihar is the only State where 27.3 per cent of sugar-cane area was irrigated. In no other State is the irrigated area for sugar-cane less than 50 per cent. Over 90 per cent of the cotton crop in the Punjab and Haryana is irrigated. The figures for Uttar Pradesh are 89.2 per cent and for Rajasthan 72.3 per cent. Tamil Nadu had only 24.2 per cent of the cotton area irrigated and States like Andhra Pradesh, Maharashtra and Madhya Pradesh had only 2 to 4 per cent of the area irrigated (Table XII).

Irrigation Costs : The cost of completing irrigation projects under various stages of construction has increased by about Rs. 250 crores over the past three years. As against the increased costs, the provision made for major and medium irrigation projects in the Fourth Plan is only Rs. 954 crores. Following the rise in the cost of projects subsequent to the formulation of the State Plans, the Union Ministry

TABLE XII

State-wise Total Area, Irrigated Area and Percentage Irrigated under Important Crops : 1967-68

State	Rice			Wheat			Others			Total Foodgrains		
	Total	Irrigated	% Irrigated	Total	Irrigated	% Irrigated	Total	Irrigated	% Irrigated	Total	Irrigated	% Irrigated
Andhra Pradesh	3,399	5,154	92.8	14	4	28.6	5,822	290	5.0	9,233	3,448	37.3
Assam	2,083	571	27.4	7	—	—	117	6	5.1	2,207	577	26.1
Bihar	5,255	1,750	33.3	1,054	405	38.4	3,532	139	3.9	9,841	2,294	23.3
Gujarat	514	138	26.8	553	353	63.8	4,004	114	2.8	5,071	605	11.9
Haryana	217	162	74.8	846	512	60.5	2,889	523	18.1	3,952	1,197	30.3
Jammu and Kashmir	227	197	86.8	187	18	9.6	356	37	10 4	770	252	12.7
Kerala	810	460	56.8	—	—	—	55	—	—	865	460	53.2
Madhya Pradesh	4,170	555	13.3	2,661	282	10.6	9.295	145	1.6	16,126	982	6.1
Maharashtra	1,367	300	21.9	891	221	24.8	10,922	420	3.8	13,180	941	7.1
Karnataka	1,135	684	60.3	305	14	4.6	5,789	220	3.8	7,229	918	12.7
Orissa	4,337	981	22.6	15	4	26.7	1,073	46	4.3	5,425	1,031	19.0
Punjab	314	257	81.8	1,804	1,262	70.0	1,465	691	47.2	3,583	2,210	61.7
Rajasthan	95	28	29.5	1,265	757	59.8	11,041	764	6.9	12,401	1,549	12.5
Tamil Nadu	2,669	2,472	92.6	—	—	—	2,405	390	16.2	5,075	2,862	56.4
Uttar Pradesh	4,398	642	14.6	4,970	2,531	50.9	9,916	1,907	19.2	12,284	5,080	26.3
West Bengal	4,714	1,315	27.9	79	27	34.2	833	58	7.0	5,626	1,400	24.9
All-India	36,437	13,861	38.0	14,998	6,457	43.1	69,986	5,786	8.3	12,142	26,104	21.5

TABLE XII *(Contd.)*

State-wise Total Area, Irrigated Area and Percentage Irrigrted under Important Crops : 1967-68

State	Sugarcane			Ground-nut			Cotton			Gross		
	Total	Irri-gated	% Irri-gated	Total	Irri-gated	% Irri-gated	Total	Irri-gated	% Irri-gated	Total	Irrigated	% Irri-gated
Andhra Pradesh	123	120	97.6	1,370	164	12.0	322	10	3.1	12,794	3,972	31.0
Assam	31	—	—	—	—	—	16	—	—	2,907	612	21.1
Bihar	117	32	27.3	5	—	—	1	(a)	(a)	10,895	2,461	22.6
Gujarat	30	28	98.3	2,009	19	Neg	1,650	208	12.6	10,420	1,166	11.2
Haryana	121	102	84.3	15	—	—	241	233	96.7	5,150	1,780	34.6
Jammu and Kashmir	2	1	50.0	—	—	—	1	—	—	808	301	37.3
Kerala	8	4	50.0	14	—	—	7	—	—	2,758	572	20.7
Madhya Pradesh	37	33	89.2	485	—	—	775	5	—	19,653	1,162	5.9
Maharashtra	165	158	95.8	1,044	15	1.4	2,794	57	2.0	19,197	1,431	7.7
Karnataka	93	93	100.0	778	—	—	1,088	42	3.9	10,417	1,219	11.7
Orissa	36	24	66.7	66	—	—	(a)	(a)	(a)	7,446	1,141	15.3
Punjab	127	114	89.6	2,222	27	12.2	420	401	95.4	5,441	3,464	63.7
Rajasthan	20	19	95.0	281	3	1.1	256	185	72.3	16,657	2,141	12.9
Tamil Nadu	142	107	95.5	909	181	19.9	356	86	24.2	7,309	3,476	47.6
Uttar Pradesh	997	673	67.5	428	1	Neg	65	58	89.2	22,709	6,352	28.0
West Bengal	27	17	63.0	—	—	—	—	—	—	6,653	1,499	22.5
All-India	2,047	1,530	74.7	7,553	413	5.5	7,995	1,285	16.1	163,026	33,132	20.3

of Irrigation and Power has assessed that a shortfall of about 6.4 lakh hectares might arise during the Fourth Plan in the six major projects of Nagarjunasagar and Tungabhadra High Level Canal (Stage II) in Andhra Pradesh, Sone High Level Canal in Bihar, Chataprabha (Stage II) in Karnataka, and Ramganga and Gandak in Uttar Pradesh. Some other irrigation projects in Madhya Pradesh, Bihar, West Bengal, Orissa and Kerala, which are also behind schedule are likely to increase the total shortfall to 9.6 lakh hectares in the anticipated additional irrigation potential.

If the target of 3.6 million hectares of an additional irrigated area in the next three years is to be achieved, the outlay on irrigation projects in the Fourth Plan will have to be raised by Rs. 110 crores. So far, Rs. 1,942 crores were spent on various major and medium irrigation projects. A further sum of Rs. 1,426 crores is now estimated to be required for completing the continuing schemes. During the first three Plans and the annual Plans, 76 major and 460 medium irrigation projects were undertaken in various States ; of these only 16 major and 299 medium projects have been completed so far. Work on the remaining projects is to be continued in the Fourth Plan. The total cost of these projects estimated when they were sanctioned was about Rs. 1,940 crores. Although about Rs. 1,765 crores have already been spent, the spillover cost is assessed by the State Governments at Rs. 1,426 crores.

If the Fourth Plan target as envisaged is to be achieved, an additional five million hectares will have to be irrigated under the sanctioned schemes. The revised gross area that can ultimately be irrigated under major and medium projects has been assessed at 51.8 million hectares.

Irrigation Rates : There are mainly four ways of charging the irrigation rate : (1) volume system ; (2) uniform rate system ; (3) differential rates system, crop-wise ; and (4) lease system.

Under the volume system the irrigation charge is levied on the basis of actual quantity of water used. Under the uniform rate system, water rate is charged uniformly, *i.e.*, on the basis of area irrigated without making any differentiation on the basis of crops. Under the differential rates system, the rate differs crop-wise per hectare. Under the lease system, the rates are fixed by mutual agreement between the Irrigation Department and farmers, the period of lease depending upon the period for which the supply of water is assured. The last basis is usually confined to some specific cases and is not a common method of determining the water rates. The most common basis adopted is the differential rate system. To encourage economy in the use of water, the canal charges are reduced to half for lift irrigation as compared with irrigation charges for flow system. Irrigation

water has been supplied free or at concessional rates to popularize it among the farmers for certain farming practices, e.g. growing of green manure or early fodder crops, etc.

In the new irrigation undertakings, the basis of fixing irrigation rates vary. In the Tungabhadra Project, water levies are computed on the basis of net income per acre and the volume of water necessary to bring the crop to maturity. Net income is arrived at on generalizations. No scientific study or analysis has been done for this purpose. In the Hirakud Project, water rates are based on increases in the gross income per hectare. In practice, there is not much difference between this and the net income approach as the latter is not worked out on any well-defined principles. In Bhakra Nangal, water rates are based on the existing occupiers rates.

Irrigation Policy : A total investment of over rupees one thousand crores has been made in major and minor irrigation during the first three Five Year Plans. A proper utilization of water made available at such a heavy cost is, therefore, extremely necessary, particularly when improved varieties of seeds giving high yields would need proportionately larger quantities of water. The Fourth Five Year Plan is alive to the problem. A centrally sponsored scheme for command area (Ayacut) development is in the Plan. This envisages an integrated approach using improved agricultural practices in relation to irrigated farming, co-operation, and development of rural industries.

Existing Problems : (1) There is lack of co-ordination between irrigation and agricultural development. In the State canal system generally the supply of water is not well co-ordinated with its requirements for crops. Changes in cropping pattern and farming practices alter the demand for water both in volume and time of its supply. The irrigation authority takes action to adjust the supply to changes in demand after a considerable time-lag. An extension programme, encouraging a change in land use programme and farming practices, use of fertilizers, etc., depends a great deal on an efficient irrigation service. Similarly, it is also true that development of irrigation depends a great deal on an effective planning of crop rotations and farming practices. But neither have gone hand in hand. Consequently, a proper use of irrigation facilities has been quite a delayed process. In an accelerated progamme of irrigation development, under the Five Year Plans, attention has been drawn to this shortcoming because of wide gaps between the targets and the actually irrigated areas.

(2) Water rates have not been determined on a scientific basis.

(3) There has been inadequate attention to drainage needs. Canal and road construction interferes with natural drainage places. Canal irrigation works were constructed in areas having wells where

the canal substituted to a large extent the well-irrigation. Instead of encouraging wells as a supplementary means of irrigations, in some States, the construction of wells was even prohibited in the canal commands. Such restrictions have now been removed. Under the Plans, an attempt has been made to fix priorities between the major and minor works on the basis of cost and return ratio for the first time. Unfortunately, wells and tanks have been put together for the calculation of cost and return ratio of the minor irrigation works. The result has been that the calculations show that the returns per unit of investment from the minor projects are lower than the major projects. This led to a wrong emphasis on major works. The return has also not been worked out on any scientific basis. Lack of attention to a proper basis for calculating the cost and return ratio, lack of data needed for such calculation, disregard to difference in the time factor in the availability of irrigation, the relative sizes of investment needed, and the combining of wells and tanks into one for estimating the cost and return ratio from minor irrigation works, led the planners to an irrigation policy which experience revealed far from right. Since then, emphasis has been placed on minor irrigation projects.

(4) Canals have also aggravated the problem of floods every year despite anti-flood measures and construction of dams. The river flow is slowed down, silt deposit increases and the river bed becomes shallow, reducing the capacity of rivers to drain the surplus rain water. Rivers are the most effective natural drainage systems, and any unplanned interference with them is bound to have its repercussions on the natural drainage and, therefore, on the incidence of floods in a country with the rainfall concentrated in short periods.

(5) Planned research is necessary on water requirements of crops under different soil conditions and farming practices.

Advisory Panel on Irrigation : The Union Government has set up a 13-member Advisory Committee on irrigation, flood control and power projects headed by the Secretary to the Ministry of Irrigation and Power. The Committee will examine irrigation, power, flood control and other river valley projects proposed by the State and Union Governments and other authorities and advise the Commission and the Ministry of Irrigation and Power on the merits of individual projects. While work on some schemes may commence in the Fourth Plan period, their implementation may be spread over the subsequent Plans.

The Committee will examine whether the schemes have been prepared after detailed investigations, whether they are technically sound, and if the estimates are complete and correct. It will scrutinize whether the financial forecasts and the estimates of benefits to be

derived are based on accurate data. With regard to power generation schemes, the Committee will examine whether they have been prepared so as to fit into the load characteristics of the region and serve the regional requirements as a whole. The Committee will also see if each scheme has been examined from the inter-State angle and if there is agreement between the States concerned in respect of schemes in which the interests of more than one State are involved. It will determine the procedure for receiving schemes from Central and State Governments.

River Basin Plans : For integrated development of water and land resources, Master Plans have to be drawn up for long-term development of irrigation in each river basin, including inter-State rivers. In preparing these plans, the optimum economical development of a river basin has to be kept in view, covering various aspects such as irrigation, flood control, navigation, and soil conservation. The development of groundwater resources would also need to be co-ordinated. Such development would often run across State boundaries. Works would have to be executed in a State other than the one in which the benefit will result. Preparation of a few basin-wise plans will be taken up in the Fourth Plan so that future schemes dovetail into these plans.

Research in irrigation, hydraulics, soil mechanics, and construction materials is being conducted in the Central Water and Power Research Station at Poona, the Central Soil Mechanics Concrete Research Station at Delhi, and other research stations in different States. These stations are engaged in applied engineering and fundamental research. The research programmes are co-ordinated by the Central Board of Irrigation and Power. With the larger programmes of development now being undertaken, the activities of these organizations will be broadened in the Fourth Plan.

Panel on Water Resources : A panel on water resources has been set up which will advise, in the light of scientific and technological considerations, on long-term planning of water resources, including their assessment, exploitation, and conservation. It will recommend the lines of research and investigation necessary for the integrated use of surface and groundwater resources. It will also consider other important aspects such as water-logging and salinity. As a step towards long-term planning, the panel will indicate priorities in the survey and exploitation of water resources, both surface and underground. For the optimum utilization and conservation of these resources, and for intensifying agricultural productivity, it has been recognized that proper distribution and management of water on the field is essential through measures such as land shaping, construction of field channels, and provision of adequate drainage.

Apart from the panel, attention is being given to studies and investigations designed to improve the efficiency of water management, public and private, with due regard to all the relevant factors such as soil conditions, plant-water relationship, farm practices and farm management.

Minor Irrigation Corporation : The Union Agriculture Ministry has mooted a Minor Irrigation Corporation on the lines of the Rural Electrification Corporation. The scheme envisages creation of a special fund of Rs. 150 crores for financing minor irrigation works like tube-wells, lift irrigation and storage tanks. Part of the money may be provided by the Union Government and the rest by the United States Agency for International Development out of the P.L. 480 rupee resources. The special fund, it is proposed, may be utilized to sanction long-term loans for selected viable irrigation projects. The rapid loans and the interest earned may be recycled on a continuing basis to refinance minor irrigation works. The State Governments may be required to guarantee the repayment of the loans and the interest so that the security and revolvement of the Corporation funds are assured.

The total outlay earmarked for minor irrigation schemes in the Fourth Plan is Rs. 468 crores. Of this, about Rs. 200 crores are accounted for by contributions towards debentures of institutional agencies, subsidy, direct loans and purchase of equipment. The balance of Rs. 268 crores is left for State works, including surface water flow irrigation projects, lift irrigation projects and tube-wells.

Special Fund for Minor Irrigation : The Agricultural Refinance Corporation, (ARC) established eight years ago to refinance the long and medium-term requirements of agricultural credit institutions, has upto June 30, 1971 committed Rs. 248.66 crores of which Rs. 16.68 crores are for minor irrigation. The assistance covered 458 schemes of which the share of ARC was 71.4 per cent. The total number of schemes sanctioned by ARC during 1970-71 was 100 involving financial assistance of Rs. 62.15 crores of which its share was Rs. 53.92 crores.

The total amount of refinance drawn from ARC as on June 30, 1971 amounted to Rs. 89.71 crores, of which Rs. 81.25 crores were drawn by the Central Land Development Banks, Rs. 4.42 crores by Commercial Banks and Rs. 4.04 crores by the State Co-operative Banks.

States like Kerala, Orissa, West Bengal and Assam have drawn little or have lagged behind in availing themselves of funds sanctioned by ARC. In its help to small farmers, ARC's programme includes two schemes—one in Haryana and another in West Bengal. The scheme in Haryana envisages the construction of 170 deep tube-wells

in Ambala district. The West Bengal scheme envisages the construction of 300 shallow tube-wells in three blocks in the Hooghly district.

To broadbase its activities, ARC has decided to concentrate on dry farming projects with the aim of helping small farmers. It has also agreed to meet the full cost of loans of the Commercial Banks which take up emergency well digging programmes in areas affected by drought or other natural calamities.

Irrigation Commission : The Irrigation Commission set up by the Union is under Ajit Prasad Jain. Its terms of reference are to : (1) review the development of irrigation in India since 1903 when the last Irrigation Commission made its report and the contribution made by irrigation by increasing the productivity of land and in providing insurance against the vagaries of rainfall; (2) examine the irrigation facilities available in chronically drought affected and food deficit areas and suggest essential and minimum irrigation works to be undertaken in them; (3) draw up a broad outline development of all types of irrigation for achieving self-sufficiency in cereals and for maximizing the production of other crops and make a broad assessment of funds required; (4) examine the adequacy of water supply in major irrigation projects; (5) examine the administrative and organizational set up for the planning, execution and operation of irrigation works, particularly to speed up completion of projects and reduce their gestation period; (6) suggest criteria for sanctioning irrigation projects and (7) examine other matters, related to the development of irrigation in the country and make suitable recommendations.

V. Soil Conservation and Dry Farming

Soil conservation measures in practice are designed to improve the soil and raise its productivity. The programme is, in fact, an integrated approach to the proper use and care of the land, using the technical knowledge of various branches of agriculture relevant to the problem in each specific case. No doubt it is a major effort against prevention of erosion and loss of soil, but the recent advances in soil conservation have considerably enlarged its scope which includes land use planning and improvement in soil structure and fertility, in addition to anti-erosion measures such as terracing, contouring, strip cropping, filling gullies, or planting excessively steep or erodable land with grass and trees. It also covers drainage of wet lands and irrigation of the dry ones; and addition of fertilizer and organic matter if the soil is deficient in them. The term soil conservation is now becoming synonymous with soil management.

Soil Erosion : Soil erosion is the process by which soil particles are transported from one place to another through the agency of wind or water in motion. Experiments conducted at different research

stations in the country have indicated a soil loss of at least 50 tonnes per hectare on cultivated land with one per cent slope against a soil loss of 1.25 tonnes on land with natural vegetation. The total energy of rain drops has been calculated as being roughly equal to 250 horse power over a hectare during a rainfall of 2.54 cm. which has sufficient force to lift nearly 18 cm. of top-soil layer to a height of over 90 cm. 86 times during an hour's rain. Suitable measures to control erosion comprise vegetative cover, rotation of crops, strip-cropping, terracing, contour cultivation, listing, drainage shelter-belts, deferred grazing, etc.

Early History of Soil Erosion : Soil erosion in its different forms and shapes has been going on for centuries. Classic examples are those of the now buried mighty civilizations of Babylonia and Assyria. If an example is required in India itself, one only has to see the ruins of Taxila and Harappa. There was a time when Bijapur was the capital of a flourishing kingdom. It is now a picture of devastation. Famines are its recurring feature. Evidence shows that as early as the time of Alexander the Great, there were thick forests and well populated cities in the north of Kutch and the south of Punjab which now form a part of the Rajasthan desert. All this happened because of wind erosion as a result of the abuse of land. Surat was, in living memory, a large commercial city. Its population during the last 50 years has come down appreciably. This is because the river Tapti has become unnavigable as a result of sedimentation caused by erosion in the uplands.

The Rajasthan desert which already covers an area of about 2.00,000 sq. kilometres is advancing towards the Ganga Plain at the rate of about 800 metres a year over a front of about 1,600 kilometres. The beautiful Nilgiris, the hillsides of the Himalayas in Kumaon and the Shiwaliks from the Punjab to Assam are also being fast eroded for want of afforestation.

Today, according to available estimates, about 50 million hectares of land in India are affected either by soil erosion or exhaustion caused by unplanned cutting of forests and bad farming. A random soil survey also reveals that 71 per cent of the area in the scarcity tract has been severely eroded and 26 per cent has been rendered useless for agricultural purposes. If nothing is done to arrest this recurring loss, reclamation of new areas provides no solution to the land problem in India because the losses by erosion will far exceed the gains. Soil erosion is caused mainly by unplanned removal of forest cover in the upper reaches, indiscriminate grazing of vegetation especially during the summer months, and wrong methods of cultivation on sloping lands without necessary protection.

In course of time, from an unnoticeable event in the beginning, soil erosion becomes a menace and deep gullies are formed. The

fertile top layer is gone. The soil becomes poor and less productive and ultimately refuses to respond to any cultivation. Troubles do not end with loss of productive power or unproductive farming. River beds become shallow. They lose their efficiency as natural drainage channels, incidence of flood increases devastating vast areas year after year. To poor yields is added the destruction of crops and loss of cattle and human lives. Navigability of rivers is greatly reduced. Because of shallow beds, the rivers' capacity to hold water during dry months is much less, causing further hardships in the supply of irrigation and even drinking water in many areas. It has been truly said that "civilization is rooted in the soil". The destruction of soil leads to destruction of the very root of civilization. Soil conservation is thus of interest not only to a physical scientist but is also a matter of great concern to social scientists as well.

Public attention was drawn to the menace of erosion in India by Glover in 1944. Sir James Penny, the then Financial Commissioner of the Punjab pointed out the importance of common grazing grounds which had been destroyed. A team of American Soil Conservation Specialists on its way back from China toured India. It explained at length how agricultural engineers, foresters, agronomists, range managers, biologists, soilmen, farm managers and above all the farmers themselves had worked collectively in the U.S.A. to fight this national scourage. The basic unit of planning in the U.S.A. was a single farm which, on an average, approximates 57 hectares, but the team favoured a village as a basic unit of planning for purposes of demonstration in India.

The team further recommended a soil and water conservation law and the creation of a service similar to the Soil Conservation Service of the United States Department of Agriculture. No piecemeal solution of the problem was possible. An Indian team which visited the U.S.A. in 1947 pointed out that the farmers could adopt soil and water conservation practices if they were shown in a practical way that these measures not only prevented soil deterioration but also paid substantial dividends. The team recommended that the entire village should be used as a unit of planning. This would illustrate better how certain conservation practices such as drainage or terracing, which cannot be effectively applied to small individual parcels of land, can be used on a co-operative basis ignoring the ownership boundaries.

Training and education programmes in soil conservation were emphasized. The intention was not to treat soil conservation as a separate subject, but to integrate the simple principles of sound land use with other scientific subjects, so as to make the future generation conservation minded.

Legislation : India can be proud of being one of those countries which has the earliest legislation on soil conservation. This problem is as old as agriculture itself. It is only in recent years that it received some attention from both Central and State Governments in this country. One of the first laws for the prevention of soil deterioration was passed in 1904 in the Punjab under the Land Preservation Act. The Act provided for such measures as *wat bandi*, contour trenching, gully plugging, terracing, tree planting, preservation of forests, etc., for preventing the havoc caused by the torrents. Systematic soil conservation work commenced only in 1936 when public co-operation was geared to the programme through the creation of co-operative societies.

In Maharashtra, soil conservation work was started in 1939 when the scheme for bunding and dry farming survey and development was sanctioned. The work was further strengthened when the Land Improvement Schemes Act of 1942 was passed and the Cusrow Wadia Fund was created for subsidizing bunding work. As a result, about 600,000 hectares of land were covered with contour bunding by the end of the First Five Year Plan. A similar Act was passed in Madras (Tamil Nadu) in 1949. In Uttar Pradesh, soil conservation measures were taken over from zamindars for erosion control and creation of fuel and fodder reserves.

The First Five Year Plan provided an opportunity for a co-ordinated approach to this programme. It was recognized that various State Governments should be armed with legal authority to overcome any opposition. The Central Government thus reviewed the existing legislation and proposed a Model Soil Conservation Bill on the lines of the U.S. legislation on Soil Conservation Service. The objectives of this Bill were :

1. Conservation and improvement of soil resources.
2. Prevention or mitigation of soil erosion.
3. Protection of land against damage by floods or drought.
4. Reclamation of waste land.

The Model Bill was sent to the State Governments for adoption. Most of the State Legislation is now based on this Model. The broad pattern of the Bill follows the Bombay Land Improvement Schemes Act, as subsequently amended by that Government. It is comprehensive and covers the following aspects :

1. Power to regulate, restrict or prohibit certain matters in the notified areas, inquire into claims and award compensation.
2. Constitution of the State Land Improvement Board and the manner of its working, constitution and functioning of the District Land Improvement Committees.

3. Appointment of an Executive Officer for a scheme under the Act with powers to get work executed by the owners of land at their cost if they are willing or at the cost of the Government subject to subsequent recovery. The executive officer is required to prepare a statement showing the details of the work done, amounts and nature of recoveries to be effected from the owners, responsibility of maintenance and other prescribed particulars. Responsibility for the maintenance of such work is that of the persons enumerated by the Executive Officer. Appeal against the actions under the Act lies with the State Gyvernment whose orders are final and cannot be called to question in any court. The penalty for contravening any of the provisions of a scheme that has come into force is prescribed.

The Act provides for the preparation and execution of schemes for the conservation and improvement of soil resources, prevention of soil erosion, protection of land against damage by floods and drought, reclamation of waste lands, etc. Also State Land Improvement Boards and District Land Improvement Committees which would be responsible for getting the work done in each State could be set up. These Boards and Committees are empowered to acquire waste land for improvement.

Central Soil Conservation Board : As a result of the increasing awareness of the problems of the soil deteroriation and its impact on the economic stability of the country, the Central Government created in 1953, the Central Soil Conservation Board for co-ordinating work on an all-India basis. Its main functions are to organize, co-ordinate and initiate research on soil conservation, to meet the paucity of trained personnel for manning soil conservation schemes and to assist State and River Valley Projects technically and financially, by advancing loans and giving subsidies, to carry out their soil conservation programmes. The Board gives financial assistance to private farmers only through State Governments and River Valley Project authorities.

During the First Five Year Plan, the Board worked out a programme to extend soil conservation measures to about 200,000 hectares. More recently it drew up a phased programme to cover about 80 million hectares by the end of the Seventh Plan period.

Research and Training : The Central Soil Conservation Board has established ten research centres one each at Dehra Dun, Kotah, Ootacamund, Bellary, Vasad, Agra, Chandigarh, Chhatra, Jodhpur and Ibrahimpatnam. The centres at Dehra Dun, Chandigarh and Chhatra deal with erosion problems in the hills in the Himalayas in the Punjab, Himachal Pradesh and Uttar Pradesh. The Ootacamund

centre investigates problems on hill-side erosion in the Nilgiris, particularly in relation to heavy rainfall conditions. The centres at Agra, Kotah and Vasad have undertaken work on conservation of ravine areas in Uttar Pradesh, Madhya Pradesh, Rajasthan and Gujarat. Stabilization of marginal lands and gullies in alluvial soils forms the main plank of investigation at these centres. Soil conservation problems of deep black soil of Maharashtra, Tamil Nadu, Andhra Pradesh and Karnataka are investigated at Bellary, while the centre at Jodhpur deals mainly with problems of drifting sand and methods of desert control. The newly started station at Ibrahimpatnam will look after the problems of red soil. Some of the States also have Soil Conservation Research Stations which deal with specific problems.

Soil conservation research work carried out at various research stations covers the different fields in associated disciplines of hydrology, engineering, forestry, agrostology, agronomy, soil sciences, etc. Small defined watersheds under different land use managements like forestry, grasslands, cultivation, etc., are being calibrated to study runoff and soil loss patterns. Runoff and soil loss studies are being made under various soil conservation treatments also. Suitable designs for engineering structures to control runoff and soil erosion; suitable tree and grass species for forestry and grassland management; suitable cultural and agronomical practices for cultivated lands; special soil conservation measures for ravine reclamation, gully and torrent control, landslip treatment, etc., are being studied on a regional basis at different research stations.

In order to provide for trained personnel for both research and extension work, the centres at Dehra Dun, Kotah, Ootacamund and Bellary conduct training classes in soil conservation. The course is also conducted at Hazaribagh in co-operation with the Damodar Valley Corporation. At Dehra Dun the courses are held for officers while at Bellary, Ootacamund, Kotah and Hazaribagh, the courses are for assistants.

The Planned Era: The magnitude of the problem was fully appreciated in the First Five Year Plan. The schemes under soil conservation—a pioneer national plan—falls under three heads. In the first category, are schemes aiming at immobilizing deserts. The second refers to measures for bunding and terracing on agricultural land. The third tackles afforestation on ravines and badly gullied lands. The importance of sound and simple soil conservation measures such as contour ploughing—ploughing fields across instead of up and down the slopes—strip cropping, sowing of cover crops like gram, cowpea or ground-nut in strips to prevent the soil being washed away, raising of shelter belts of growing trees to check

encroachment of the desert, mulch farming, bunding, terracing, gully plugging and check damming, hardly needs emphasis.

On the recommendations of the Planning Commission, notable progress has been made in the initiation, organization and co-ordination of soil conservation research, training and action programme on the national level. The Central Board has given technical and financial assistance to the State Governments to develop a sound programme of soil conservation. According to a working concept set by it, soil conservation includes all soil and water management practices that are needed to attain sustained production of cultivated crops, grasses and trees at the highest practical level.

With the experience gained during the Second Plan and a larger number of persons trained in soil conservation, development work during the Third Plan was stepped up considerably. An outlay of Rs. 72 crores was provided for the execution of various programmes and specific targets laid down under different schemes. There was emphasis during the period on additional training facilities for a successful completion of the Plan targets. It was visualized that people's participation in this programme was necessary. Mobilization of local leadership and other measures, therefore, formed an integral part of the Plan. Suitable legislation empowering State Governments to frame soil conservation schemes for the basin of a river or a stream or for groups of villages was recommended.

In the Fourth Plan, soil conservation programmes in conformity with the new approach of integrated Watershed Work Plans and Area Saturation, was adopted. The more important of the soil conservation measures on which greater emphasis was laid included control of soil erosion, protection of land against all forms of soil deterioration, improvement of physical conditions of land, rebuilding of soil fertility, conservation of soil moisture for crop use, proper management practices, etc. Till the end of 1969-70, an area of about 11 million hectares had been treated with soil conservation measures at an estimated expenditure of Rs. 215.2 crores. The programmes of soil and water conservation were taken up in different rainfall zones and special attention was given to land development in dry land farming areas with scanty rainfall as well as creating employment opportunities in such areas.

Work in Catchments of River Valley Projects : The centrally sponsored programmes of soil and water conservation in the catchment of 13 major river valley projects are being intensified in order to prolong the life of the multi-purpose reservoirs which are beset with the problem of high rate of sedimentation. The works were concentrated particularly in watersheds where there was evidence of accelerated erosion. In addition, soil conservation programmes were

initiated in 8 additional river valley projects. In such areas, about 0.1 million hectares were covered during 1970-71. Various measures taken in the river valley project areas are expected to conserve the water storage capacities of irrigation schemes. This centrally sponsored scheme is being executed by the Agriculture and Forest Departments in the respective States. Some State Governments are also undertaking similar programmes with their own resources. The Governments of the Punjab and Bihar have established Soil Conservation Directorates for working the programme under the centrally sponsored and State Sector Schemes. Implementation of both schemes has helped in creating additional employment opportunities for about 12 crore man days.

Ravine Reclamation : Under the Centrally sponsored scheme of pilot projects in Gujarat, Madhya Pradesh, Rajasthan and Uttar Pradesh, an area of 1,200 out of 8,000 hectares is estimated to be reclaimed during 1970-71 at a total cost of Rs. 30 lakhs. The objective of this scheme is to determine the technical and economic feasibility of large scale ravine reclamation. The experience gained in the execution of pilot projects is expected to be utilized by the respective State Governments for taking up large scale ravine control and reclamation works.

Soil Survey : The All-India Soil and Land Use Survey Organization under the Ministry of Agriculture is conducting a standard soil survey in the catchments of 13 river valley projects. The purpose of these surveys is to provide basic information on priority areas for planning and execution of various soil conservation measures. Some soil surveys are also conducted outside the catchment area to find out the suitability of land for agricultural purposes. It is estimated that 2.75 lakh hectares would be surveyed in the catchment areas. Aerial photo-interpretation work has also been initiated in the newly selected 8 river valley projects for the purpose of erosion assessment in these catchments.

In order to establish potential areas for economic agriculture, a centrally sponsored scheme of soil survey in 5 innovative IADP districts, namely, Ludhiana, Sambalpur, Raipur, West Godavari and Thanjavur was initiated during 1969-70. A target of 8 lakh hectares fixed for 1970-71—4 lakh hectares detailed soil survey and 4 lakh hectares reconnaissance soil survery—is likely to be achieved during the year at a total cost of Rs. 7.5 lakhs.

Resources Inventory Centre : The Resources Inventory Centre set up in 1967-68 is engaged in collection, correlation and presentation of available data through maps, charts and reports and highlighting information gaps. Relevant data on soil, water, vegetation, land use and climate are the main disciplines on which the data are being

collected and presented. A technique of sample surveys to enable a quick inventory of land resources has been tested in Indore district and is being refined for wider application. A tentative study on criteria for nation-wise delineation and codification of watersheds has also been initiated.

Other Aspects : A central unit for Soil Conservation (Hydrology and Sedimentation) started functioning during 1970-71 for the collection and correlation of hydrological and sedimentation data with a view to evolving standard design procedures to be used in priority determination and work plan development for the catchments of river projects and other schemes.

Integrated Development of Dry Land Agriculture : The break-through in agriculture, which has been achieved in irrigated and assured rainfall areas through the introduction of high yielding varieties and multiple cropping has to be extended to dry areas. Accodringly, a centrally sponsored scheme for Integrated Dry Land Agricultural Development was launched in 1970-71 for implementation during the remaining period/term of the Fourth Five Year Plan. The approach of the scheme consists of (i) intensive research for evolving techniques which will give maximum returns and (ii) practical application of the available knowledge on soil and moisture conservation practices; cultivation of drought tolerant and short duration photo-insensitive varieties of crops, new techniques of fertilization, etc., under pilot project.

It is proposed to take up 24 pilot projects under the scheme which would be training-cum-demonstration projects. To begin with, 9 such projects were initiated during 1970-71 in Andhra Pradesh, Gujarat, Haryana, Madhya Pradesh, Maharashtra, Karnataka, Rajasthan, Tamil Nadu and Uttar Pradesh. Advance action has also been initiated to establish the remaining 15 pilot projects during 1971-72. In view of the special nature of this programme and due to the weak economic position of the farmers, special incentives have been provided. These include subsidies and loans for inputs as well as for permanent works at least in the initial stages. The scheme takes care of infrastructure requirements like demonstrations, farmers' training, use of improved implements, foliar spraying of urea and pesticides, sprinkler irrigation and suitable animal husbandry programmes. Care is taken to ensure that the investment is related to likely returns.

VI. Land Policy

An ideal land system should aim at ensuring the most productive use of land without any damage to it and loss of fertility in the long run. This means that the tiller of the land should enjoy full

security over the land held by him provided he assumes responsibility for its proper maintenance and cultivation. The system of taxes and rent, if the land is not owned, should assure a reasonable reward for his labour and expenditure. There should be necessary incentives and sanctions for investment on improvements in land. Keeping this in mind, it is proposed to examine the land policy from 1947.

Pre-Independence Legislation : In the pre-independence era, piecemeal attempts were made for eliminating some of the worst features of land tenure. The former Government of Bombay enacted in 1938 a law creating a class of protected tenants who could not be evicted except for non-payment of rent and such specific reasons. Rents were also reduced. In Bihar, all rent enhancements between 1911-13 were cancelled and illegal evictions by the zamindars were made a penal offence. In the United Provinces, as Uttar Pradesh was then called, a moratorium was declared on all arrears of rent and debts, and ejectments of tenants were prohibited. When the U. P. Tenancy Act of 1939 came into force, permanent and heritable occupancy rights were given to 7 million tenants over an area of 66 million hectares.

Land Pattern on the Eve of Independence : Various interests in land on the eve of independence fell into four classes : (1) cultivating holders ; (2) intermediaries—non-cultivating holders ; (3) tenants-at-will ; and (4) agricultural labourers.

Cultivating holders may be classified into two categories—owners and tenants. If the owner cultivates the land himself, there is no other person holding interest in his land above or below him and between him and the State. As against this, tenant holders do not have any ownership rights in land. They may more appropriately be described as 'occupancy tenants' to distinguish them from the 'tenants-at-will'. They have no direct relation with the State, but there is a chain of intermediaries. Land tilled by them may have any number of interests above them.

Intermediaries are either non-cultivating owners of land or non-cultivating occupancy tenants. In the Zamindari areas, all interests above the occupancy tenant and below (if he himself was a non-cultivator) can be termed as intermediaries. In the ryotwari areas, owner-holders, not cultivating the land themselves, are intermediaries. They pay a fixed revenue to the State and receive higher rents. As in the case of Bengal, there could be as many as 15-20 intermediaries between the State and the actual tenant or the tiller of the soil.

A tenant-at-will cultivates the land and bears its cost of cultivation. He may or may not have any security of tenure. The land tilled by him can have any number of interests above him. His rights

on the land also differ from region to region. Invariably his interest is not permanent and heritable. But there are examples like those of Bihar, where even the under-ryot, the man at the bottom, can also acquire occupancy rights by a continuous possession of land for twelve years. Agricultural labourers constitute the mass of unemployed and underemployed landless population in the villages. Very few of them are able to secure permanent employment. Some cultivate small parcels of land and may even own the plots but their major source of living is the wages earned. This class always exerts great pressure to obtain land for cultivation.

Land Reforms in Post-Independence Era : On the eve of independence, the social, economic, and political thinking was very favourable for land reform measures, rather the various political groups vied with each other in advocating an overhaul of the land system which would benefit the small holders and landless population. The First Five Year Plan stated that the increase of agricultural production represented the highest priority in planning over the next few years, and agricultural economy had to be diversified and brought to a much higher level of efficiency.

In this context, it was necessary to remove the impediments to agricultural production. Opinion was growing that the first requisite for better farming was a change in the character of the agrarian structure in India. An irrational agrarian relationship could be responsible for (1) a large share of the produce being paid as rent, leaving little incentive to the poor cultivator to increase output; (2) reducing the margin of saving for investment on land or its efficient cultivation in the case of the majority of tenants who are small holders; (3) lack of security of tenure, even in the case of well-to-do farmers and, therefore, no incentive to improve production or invest on land improvement; and (4) no interest in investing on land improvement on the part of absentee landlord who normally has other sources of income as well.

More than a business proposition, agriculture in India is a way of life for more than seventy per cent of the people. No Government wedded to a welfare programme could be indifferent to the status of millions who depend on land. Protection against exploitation, security and equality of status and opportunity among different sections of the rural population, were accordingly accepted as national policy.

Objectives of Land Policy : Broad objectives of land reform measures under implementation and formulation in the country may be summarized as follows :

(1) Land to the tiller,

(2) Augmentation of agricultural production by a better system of land management.
(3) Reduction of inequalities in opportunities and income.
(4) Improvement in the position of agricultural workers.
(5) In general, the raising of living standards in rural areas.

For the fulfilment of these objectives, major steps adopted under the programme are :

(1) Abolition of intermediaries.
(2) Regulation of landlord/tenant relationship by fixing fair rents, conferring security of tenure on tenants subject to the landlord's right to resume a limited area for personal cultivation, bringing tenants into direct relationship with the State in respect of areas which the landlord is not entitled to resume and gradual conferment of ownership rights on the tenants.
(3) Redistribution of land by placing ceilings on future acquisition and existing holdings and acquiring surplus areas above the ceilings, resettlement of landless agricultural workers and increasing the size of uneconomic holdings.
(4) Consolidation of scattered holdings into compact blocks and prevention of fragmentation and diminution of holdings below an economic size.
(5) Development of co-operative farming by which small holdings will be pooled and cultivated jointly to increase the size of the operational unit and benefit from economies of large-scale organization leading ultimately to co-operative village management.

Abolition of Intermediaries : The abolition of intermediaries, though having wider objectives of social equality and economic advancement of the tenant class, gained considerable support when legislation failed to regulate the relations between landlords and tenants. Enactments for the abolition of intermediaries were undertaken in certain States before the formulation of the First Five Year Plan. But most of the work relating to enactment of laws and acquisition of intermediary titles was done during the period of First Plan. Zamindari Abolition Acts were passed in Uttar Pradesh, West Bengal, Madhya Pradesh, Patiala and East Punjab States Union (PEPSU), Rajasthan, Saurashtra and Delhi. Intermediary rights in the States of Uttar Pradesh, Bihar, Punjab and West Bengal have now been completely abolished. Except for a few minor tenures, legislation has been enacted in other States.

Compensation : Since no property can be acquired by the State without compensation to the owners under the Constitution, all Acts for abolition of the rights of intermediaries provide for payment of

compensation and indicate the principles according to which and the manner in which, compensation has to be determined. It is computed on the basis of 'net income' in Assam, Bihar, Madhya Pradesh, Orissa; on 'basic annual sum' in Tamil Nadu and on 'net assets' in Uttar Pradesh.

The 'net assets' and 'net incomes' are calculated by deducting from the usual aggregate incomes, accruing to the landlord from their estates, the aggregate of the expenses incurred by way of pay, cost of management, recoverable arrears of rent, etc. The basic annual sum (as in Tamil Nadu) is calculated on the basis of the gross annual ryotwari demand, average net income derived from *lanka* lands other than those in respect of which ryots of land holders are entitled to ryotwari *patta* and average net annual miscellaneous revenue derived from such sources as waste land, pasture land, forests, mines and minerals, rivers, quarries, fisheries, etc. Deductions are to be made on account of establishment charges, deficiency in collection, maintenance of irrigation works, etc.

Rates of compensation are fixed on a graded scale with higher multiples for smaller incomes and lower multiples for higher incomes. The multiple laid down is eight times in Uttar Pradesh and seven times in Rajasthan and parts of Madhya Pradesh. In Madhya Bharat, now part of Madhya Pradesh, the multiple is eight under the Zamindari Abolition Act and seven under the Abolition of Jagirs Act. In other States the sliding scales are as follows :

Assam	2 to 15 times
Bihar	2 to 20 times
Tamil Nadu	12 to 30 times
Madhya Pradesh (merged territories)	2 to 10 times

In Uttar Pradesh, Madhya Pradesh, including the Madhya Bharat area, where compensation is to be determined at a flat rate, the State also pays a rehabilitation grant to the smaller intermediaries in addition to compensation. Small intermediaries are those who pay land revenue upto Rs. 10,000 in Uttar Pradesh and Rs. 3,500 in Madhya Pradesh including the Madhya Bharat area. For the Madhya Bharat area, it is further laid down that only proprietors who earn livelihood wholly or mainly from agriculture will get rehabilitation grants.

The main problem now engaging the attention of State Governments is the building up of the revenue agency and preparation of land records. In many States this has been completed. Action is still pending in States like Bihar and Orissa. In the country as a whole, about Rs. 320 crores has so far been paid as compensation, out of an estimated total of Rs. 570 crores including rehabilitation grants and interest.

Payments made by Tenants : The incidence of compensation to be paid to intermediaries has ultimately to fall on the tenants and sub-tenants. The State recovers rent from the tenants and pays compensation to the owners out of its increased revenues. Every effort has, however, been made to ensure that the total annual burden on cultivators to whom the lands are allotted does not exceed the fair level of rent. The object is to improve the status of the tenant by the purchase of superior proprietory or quasi-proprietory rights. The amount may be paid in lump sum or equated annual instalments. Since the amount of compensation to be paid to intermediaries is at much lower rates than the market price of land, it has been a gain for the tenants.

Not all the landlords in the country are descendants of former revenue farmers. A number of them actually purchased land and invested on its improvement. They belong to the genuine class of landlords as anywhere else in the world. But in the payment of compensation to them, under the various Zamindari Abolition Acts, it was not administratively feasible to make any distinction between those who acquired the title of landlords without any investment and those who invested on it their hard-earned wealth.

The outgoing intermediaries and the old classes of tenants under the terms of settlement would pay to the State the existing rates of rents or such fair and equitable rents fixed by the State Governments. In Assam and Tamil Nadu, fresh settlements on ryotwari basis would be introduced in areas taken over by the State, but, pending such settlements, rates of land revenue would be determined on the basis of existing rents or rates chargeable on similar lands. Under the Assam Act during the transitional period, the land revenue realizable would not exceed the rent which was payable by the ryot to the proprietor or the superior tenure holder immediately before the date of notification.

In Tamil Nadu, the land revenue would be equal to the rent which would have been payable to the landholder during *fasli* year in which the Act was notified.

All *Bhumidars* and *Sirdars* in Uttar Pradesh are jointly responsible to the State Government for the payment of land revenue. In the case of *Bhumidars* and *Sirdars*, land revenue is equal to the revenue of rent payable by them before the date of vesting. When *Sirdars* acquire *Bhumidars* rights on payment of the prescribed amount, they get a reduction of 50 per cent in the land revenue payable by them on the date of admission. The land revenue payable by *Bhumidars* would not generally be revised for 40 years after the commencement of the Act except on ground of increase or decrease in the area of their holdings.

Those who wish to purchase the ownership rights immediately have to pay a multiple of their annual rent. In Uttar Pradesh this is ten times and three or four times the present rent for absolute occupancy tenants and occupancy tenants respectively and six and fifteen times for occupancy tenants and sub-tenants respectively in the Madhya Bharat region of Madhya Pradesh.

The time lag between the enactments relating to abolition of intermediary rights and their implementation was used by a number of zamindars to evict the tenants so as to enlarge the size of *sir* and *khudkasht* holdings and have it classified in the village records as 'under personal cultivation'.

The so-called 'voluntary surrenders' reported on a large scale from various States, were actually 'forced evictions'. To curb this tendency, special acts and orders have been promulgated in States like Assam, Bihar, Tamil Nadu, Karnataka, Rajasthan and Delhi. These acts seek to protect the interests of tenants, check their eviction, and prohibit land transfers pending introduction of reforms. Some of these also contain provisions for the protection of trees, private forests, irrigation works, etc.

Suggestions have also been made that even where a surrender is registered, the landlord should be entitled to take possession of the land only to the extent of his right to resumption, the balance being taken over by the State. A few States have made provision for the review of voluntary surrenders. All these laws, however, seem to have failed to remove the harm already done.

Efforts have also been made by landlords at some places to circumvent the legislation by entering into mutual agreements with the tenants. The landlord pays full or part of the compensation to be paid by the tenant and takes possession of a portion of the land which would otherwise have remained with the tenant. In States like the former PEPSU State such an arrangement was declared as legally valid.

In spite of these evasions, the share of cultivated land directly settled with Government has increased considerably. Vast areas of waste-land and grazing grounds which belonged to the zamindars now belong to the village communities.

Tenancy Reforms : The intermediary abolition acts did not affect the tenants-at-will and other layers of non-occupancy tenants, ryots, under-ryots, share-croppers, etc. The object of tenancy legislation in India is to help this class of cultivators in the States where intermedairy abolition acts have been passed and to define the tenure arrangements to ensure more productive use of land in the remaining areas where such legislation has not been enacted.

Security of Tenures : Legislation adopted in different States for tenancy reforms follows two broad patterns. Comprehensive legislation has been adopted in Assam, Maharashtra, Tamil Nadu, Jammu and Kashmir, Punjab, Rajasthan, Uttar Pradesh, West Bengal, the former State of Hyderabad, and the centrally administered Union Territory of Delhi, defining the tenure arrangements on the basis of the new social policy.

In Andhra Pradesh, parts of Kerala, Tamil Nadu, Karnataka, Orissa, and Bihar legislative action in this direction is only of a stop gap nature providing for stay of ejection and regulation of rent. More comprehensive legislation is in different stages of formulation in these States. The Madhya Pradesh Government has yet to initiate legislation for stay of ejection of tenants in what was formerly known as the Central Provinces. Provision has, however, been made for conferment of occupancy rights in lands which have been let out for three years or more in any consecutive period of five years.

Resumption of Land for Personal Cultivation : Experience has shown that land owners are liable to misuse the saving clause 'personal cultivation' and eject tenants. In order to ensure that only *bonafide* cultivators resume lands from tenants, the Second Plan imposed certain obligations on the owners and defined 'personal cultivation' to include: (1) personal supervision by the owner himself or by a member of the owner's family and in order that personal supervision may be effective, the owner or a member of his family must reside in the village in which the land is situated or in a nearby village within a distance to be prescribed; (2) the owner must bear the entire risk of cultivation; and (3) the owner or a member of his family should contribute personal labour to cultivate the land.

Tenancy legislation, practically in all the States, contains some of these clauses to define 'personal cultivation' but in none of the legislation area all the three clauses referred to above are enacted. The first and the second clauses have, for example, been enforced in Maharashtra, Rajasthan, and a number of other States. Assam, on the other hand, has introduced only the first one.

Certain safeguards have been provided for persons serving with the armed forces, unmarried women, widows, minors, and other persons suffering from mental or physical infirmities. Such persons enjoy the right to lease out land and to resume for personal cultivation when the disability ceases.

Some recommendations have also been made in the Second Plan about the area which the tenant can retain. It has to be equitably determined and demarcated by the authority and permanent and hereditary rights conferred on tenants in respect of non-resumable areas. In short, the interests of owners who wish to cultivate per-

sonally and of a tenant who may be deprived of his living on account of resumption, have to be reconciled.

Legislation adopted in various States, for the purpose, may be grouped under five heads. (1) In some areas such as Uttar Pradesh and Delhi, the landlord is not allowed to resume any land by ejecting tenants; and tenants holding land on a particular date are conferred permanent and heritable rights.

(2) In Maharashtra, Punjab, Rajasthan, and Himachal Pradesh, a tenant has the right to retain a minimum area or he gets an alternative area before he is ejected. In either of these cases, an upper limit on the resumption of land by the land holders is fixed. The upper limit varies from State to State.

(3) Though an upper limit on the resumable area is imposed there is no provision for the tenants to retain or obtain a minimum holding. Assam, Madhya Pradesh (Berar area), former Hyderabad area, Orissa, former PEPSU, Kutch, West Bengal and Jammu and Kashmir are in this group.

(4) Measures in the form of an order for staying ejection have been adopted in certain areas to give temporary protection to the tenants. These areas are Andhra Pradesh, Vidarbha area of Maharashtra, Kerala, Madhya Bharat, Bhopal and Vindhya Pradesh areas in Madhya Pradesh, Tamil Nadu, Karnataka, Orissa and Manipur.

(5) Finally, States where no upper limit for resumable area exists and the landlord has the right to eject the tenants at will. In other words, he can resume the entire area for personal cultivation. Here there is generally no security of tenure.

Regulation of Rent : The First Five Year Plan recommended that the maximum rent should not exceed one-fourth or one-fifth of the gross produce. Legislation for the regulation of rent has been adopted or is under progress in all the States But there is great variation in the rates of rents fixed in the States. For example, in Maharashtra and Rajasthan, it is one-sixth of the gross produce. In Assam, parts of Karnataka, Orissa, Delhi and Himachal Pradesh, rents have been fixed at one-fourth or even less. In Jammu and Kashmir, Karnataka, Bihar and Punjab rents have been fixed at one-third of the gross produce. In a few States, rents have also been fixed as a multiple of land revenue.

Existing rates in some States, like Bihar, Jammu and Kashmir, Tamil Nadu, Karnataka, and Punjab, still exceed the prescribed limit under the First Plan. Steps are being taken to reduce them. In Madhya Pradesh and Saurashtra regulation of rents has yet to be taken up. The Report on the working of Bombay Tenancy Act, 1948, observes that share rents have remained unchanged whereas cash rents have shown no signs of reductton. On the contrary, it is found that on occasions when tenants were changed, there

have been more cases of enhancement than of reduction in the rent. In Gujarat, it is found that except for Broach, the level of rent was in excess of the legal ceiling. In this connection the Report says : "The socio-economic factors and traditions were powerful forces in determining the levels of rent and it will take time to overcome them to adjust the levels of rent to the statutory level of ceilings. In spite of the fact that maximum rents have been fixed in most of the States, the tenants' position remains more or less the same. It may be difficult to draw a general conclusion for the country as a whole, based on the experience of a single State, but all the same, this provides some indication of the situation prevailing in the country".

Ownership Rights for Tenants : Some sort of protection has been given to the occupancy tenants. But tenants-at-will had not been protected so far and they had no permanent rights in land. Recent enactment entitled both these types of tenants to acquire ownership of land under certain conditions.

The objective of bringing together in one person, the right to own and the right to use in respect of non-resumable area was thus proposed to be achieved. As stated in the First Plan, the present link between the tenants and rent receiving owners has to be removed and tenants brought into direct relationship with the State.

Various enactments in different States have made provisions to effect this change. The basis for determining the price of land which tenants wish to purchase and its mode of payment differ from State to State. Care has, however, been taken to ensure that the aggregate of the amount of payments of compensation does not exceed the level of rent recommended in the Plan.

Action taken by various States for transfer of ownership to tenants follows broadly the following pattern :

(1) All tenants have been brought into direct relationship with the State, as in Uttar Pradesh. The State recovers rent from the tenants and pays compensation to the owners out of its increased revenues. In Delhi, the tenants get full ownership rights and are required to pay compensation direct to owners in addition to payment of revenue to the Government.

(2) Tenants have been asked to buy ownership rights by a stipulated date, failing which they become liable to ejectment. The Bombay Legislation contains a provision along these lines.

(3) Tenants have been given optional right of purchase on payment of price, regulated by law and payable in instalments spread over a period. In States where legislation has been enacted for converting tenants into owners, about 34.39 lakh tenants and share croppers have acquired ownership of more than 31 lakh hectares,

Redistribution of Land : A major decision has been taken in favour of redistribution of land to fulfil the objectives of reduction of inequalities and more even distribution of economic power in a democratic-socialistic State. The following measures relate to redistribution of land to help landholders with uneconomic size holdings and landless persons :

(i) Ceiling on Holdings
(ii) Settlement Projects
(iii) Bhoodan Movement

Ceiling on Holdings : A ceiling on the size of holdings means a statutory absolute limit on the total area of agricultural land that an individual may possess (in one or a number of units). It was proposed in the First Five Year Plan that a limit on the extent of land, an individual or a family should be allowed to hold, be imposed in all the States. In order to implement this suggetion, a census of land holdings and cultivation was undertaken. The Committee of the Panel on Land Reforms also recommended ceilings on the aggregate area held by a family. Land held in excess of that limit, it was proposed, shall be distributed among landless agricultural persons and those with uneconomic holdings. Various plans have reiterated the importance of implementing this decision at an early date and the Nagpur Resolution of the All India Congress Committee in January 1959, stated that legislation to this effect should be completed by the end of 1959.

Objectives : Ceilings on land can have broadly two objectives, *viz.*, (1) social justice to level down the difference between the 'haves' and the 'have-nots', by reducing glaring inequalities in ownership and use of land as well as in agricultural incomes, and (2) increased production in the interest of the country as well as the individual by meeting the widespread desire to possess land and enlarging the sphere of self-employment.

It has thus been suggested that steps be taken to diffuse ownership to reduce tension in the country and provide an incentive for increased output. The Mysore Tenancy Agricultural Land Law Committee has gone further and suggests that ceilings may also be imposed in other sectors of the economy so that there may be no sense of grievance on the part of agriculturists.

Ceilings have thus to be viewed, not as an isolated measure, but as an essential part of a fully considered scheme of reorganization of the agricultural economy.

One of its primary objects is that land should be cultivated only by those who have complete interest in it. Fixation of ceilings would

remove all disinterested parties from the land. Surplus land, thus made available, can then be distributed among the landless. Past experience has been that generally, the large land holders did not pay proper attention to the cultivation of the entire land held by them nor did they make any investment on improvement of the land. Still they preferred to maintain their hold on the land. With their elimination, all classes remaining on land will cultivate their entire holding efficiently.

Legislation on Ceiling : Legislation on ceilings has been enacted in most of the States (Table XIII). It imposes either a limit on future acquisition, *i.e.* no one can increase the area held by him beyond the limit imposed by the ceiling fixed for the region, or a limit on the size of existing holdings, *i.e.* the land in excess of the ceiling will be acquired by the State.

TABLE XIII

Land Ceiling in States

States	Future Acquisition	Existing Holdings
Andhra	11.5 to 106 Hectacres	110 to 132 Hectacres
Assam	20.4 ,,	20.4 ,,
Bihar	8 to 24.5 ,,	8 to 24.5 ,,
Gujarat	7.7 to 53.5 ,,	7.7 to 53.5 ,,
Jammu and Kashmir	9.7 ,,	9.7 ,,
Kerala	6.1 to 15.3 ,,	6.1 to 15.3 ,,
Madhya Pradesh	10.2 to 30.5 ,,	10.2 to 30.5 ,,
Tamil Nadu	9.7 to 40.7 ,,	9.7 to 40.7 ,,
Maharashtra	4.9 to 34.2 ,,	7.3 to 51.3 ,,
Karnataka	7.3 to 58.6 ,,	11.0 to 87.9 ,,
Orissa	8 to 32.6 ,,	8 to 32.6 ,,
Punjab	12.2 Standard ,,	12.2 Standard ,,
Rajasthan	12.2 Standard ,,	12.2 Standard ,,
Uttar Pradesh	5.1 ,,	5.1 ,,
West Bengal	10.2 ,,	10.2 ,,
Manipur	10.2 ,,	10.2 ,,
Tripura	10.2 to 30.5 ,,	10.2 to 30.5 ,,
Himachal Pradesh	12.2 ,,	12.2 ,,

Bhoodan Movement : It is a non-official movement under the leadership of Acharya Vinoba Bhave. The movement for voluntary land gift has the sympathy and support of the Congress, the present ruling party. Describing the aims of the movement, Acharya Bhave, said : "In a just and equitable order of society, land must belong to all. That is why we do not beg for gifts but demand a share to which the poor are rightly entitled. The main objective is to propagate the right thought by which social economic maladjustment can be corrected without serious conflicts."

In its practical application, *Bhoodan* takes the shape of asking for voluntary donations of one-sixth of the land from owners for redistribution among the landless. In the non-agricultural sector, the movement assumes various forms such as *Sampattidan* (donation of money or other resources), *Buddhidan* donation (donation of mental abilities) and *Jivandan* (donation of life).

Progress under Bhoodan: The movement which began on a modest scale on April 18, 1951, now covers the length and breadth of the country. The initial target was to obtain 20 million hectares of land so that it may be possible to provide some land for cultivation to every rural family. Total collections so far have been only 1.7 million hectares under the movement. Of this, only ·5 million hectares have been distributed among the landless. There are quite a number of snags in redistributing the land so collected. In a number of cases, the Government did not have proper land records and about 40 to 50 per cent of the land collected was fallow. The progress of the movement is actually very slow for the last few years when hardly any new land has been collected.

In 1965, Vinobaji launched a programme *Toofan Gram Dan*, a whirl-wind campaign to collect gifts of whole villages in Bihar. The ideal was that all land should belong to the village community as a whole. Following this call, as many as 41 thousand *Gram Dan* have been made in Bihar, a State which was fast heading towards the achievement of a complete 'State *Dan*'. Bihar, Tamil Nadu, Orissa, Madhya Pradesh, Uttar Pradesh, Maharashtra and Rajasthan Governments had already pledged full co-operation to *Sarvodaya* workers in bringing these States within the purview of the *Gram Dan* Movement during the Gandhi Centenary Year.

As in the case of land donated under *Bhoodan*, the land received in over 1 lakh *Gram Dans* has also to be legally transferred in the name of the *Gram Sabhas*. *Sarvodaya* workers have not yet concentrated on the functioning of the *Gram Sabhas*, but they were only trying to collect as many *Gram Dans* as possible.

The implementation of the whole *Sarvodaya* programme would be carried through *Gram Dan Sabhas* after they have achieved a few *State Dans*.

The *Gram Dan* Movement aims at achieving a total rural revolution through peaceful means. It was also an educative process to educate the rural people about the value of collective ownership and forewarning them against the vested interests of landlords and usurers. In that sense, it was a silent revolution which was bound to have social and political repercussions in the near future. There was urgent need for evolving a way for a village oriented economy. The present official plan and policy of development were business

oriented. *Gram Swaraj* would completely reverse this process and the *Gram Sabhas* would work for an agro-industrial self-reliant economy which would progressively eliminate exploitation of the masses and disparity in incomes. The village oriented economy would be an economy of sharing, as distinguished from the economy of a competitive market. This calls for decentralization of power giving villages some autonomy.

It is very difficult to say at this stage how far these ideals will be achieved. Although much of the land that has been donated is reported to be unfit for cultivation, the area of land made available through *Bhoodan* is no way insignificant as compared with the land to be acquired through legislation on ceilings. A more significant point to be stressed is that such a large area of land has been given as a free gift even when the position with respect to the availability of land is not at all comfortable and the majority of Indian farmers are themselves small holders. Judged in this way, it is certainly a great success. Even the worst critics of the movement have no hesitation in agreeing that the achievement has no parallel in the world.

Land Management Legislation: The First Five Year Plan recommended that individual owners should conform to standards of efficiency determined by law in the cultivation and management of land. In their application, these standards were thought of, in the first instance, in relation to large holdings. In the Second Plan it was suggested that standards of efficiency and management would apply to all holdings.

The Committee of the Panel on Land Reforms recommended that all farmers should be obliged to maintain reasonable standards of production and preserve and develop the fertility of the soil. There should be land management legislation to provide necessary incentives and sanctions for the performance of this obligation. Implementation of the legislation at the village level should be undertaken generally through village panchayats, but suitable arrangements for supervision would be necessary.

The purpose of land management legislation as envisaged by the Panel on Land Reforms may be classified broadly as follows :

(1) To provide for cultivation of all land suitable for cultivation.
(2) To ensure proper standards of cultivation.
(3) To ensure collective or group adoption of certain practices.
(4) To enforce changes in cropping pattern and introduce new combinations of enterprises, *e.g.* mixed farming.
(5) To participate in co-operative societies.
(6) To provide incentives.
(7) To take punitive action.

The main purpose of the management legislation by itself is to instil a sort of fear of punitive action in the minds of farmers in case they failed to adopt improved management practices.

Because of difficulties in determining the output, the norms suggested relate to the adoption of improved practices. In some States, powers have been acquired under which the authorities can ask the owners of waste and fallow land to bring them under cultivation. In case of default, the Government would lease them out to tenants for a number of years. Assam and Madhya Pradesh have increased assessment on waste lands so as to induce the owners to put such land under the plough. Again, management of estates in certain cases can be taken over by the Government. In Maharashtra, if land is not properly cultivated or is lying uncultivated for any two seasons, whatever the reasons, the Government can assume management immediately. Government may also take over land when it considers necessary for the purpose of improving the economic and social condition of peasants.

Recent Changes : Many State Governments have recently been trying to reduce the ceiling on holdings. Tamil Nadu announced a reduction of ceiling of land holdings from 12.14 to 6.07 standard hectares. This was resisted by land owners in Thanjavur district. After the first Land Ceiling Act was enacted in 1961, only 26.30 thousand hectares out of 103.60 thousand hectares said to be surplus were notified ; of this only 3.2 thousand hectares were assigned to tenants. If the ceiling is reduced to 4.05 hectares as proposed a further surplus of 81, thousand hectares will be made available. If implemented, this will deprive 45 thousand land owners of their land to benefit only 40 thousand at the rate of 2.02 hectares each.

Besides Tamil Nadu, the ceiling, at present varies from the absolute area limit of 6.07 to 15.17 hectares in Kerala, 12.14 standard hectares in Rajasthan and Punjab, 10.92 to 131.12 hectares in Andhra Pradesh and 16.19 hectares in Uttar Pradesh. The Central Land Reforms Committee which had long been examining this question recommended a ceiling of 4.05 to 7.29 hectares with assured irrigation and 4.05 to 21.85 hectares of unirrigated land for a family of five.

Generally, the level of ceiling is the lowest for land with assured irrigation and highest for dry farming. In Tamil Nadu, the level depends upon the rate assessment while in Haryana and Punjab the criterion adopted is the gross yield. In Uttar Pradesh, the ceiling is based on the hereditary rent rates prescribed at the time of settlement or resettlement. The case has been made out with the application of a ceiling on family basis to provide an effective check against clandestine transfer of land to members of the family with a

view to evading the ceiling laws. The ceiling is, therefore, to apply to the aggregate area held by all members of a family and the family is defined as one which includes the husband, wife, their children and grand-children.

The Central Land Reforms Committee will also consider the suggestion that transfers made after the prescribed date of any new ceiling laws should be void or be disregarded in order to prevent *benami* transfers. The States have their own laws on land transfer which give enough opportunities to the holders for manipulation within the laws. Most of the States have exempted land used for cash crops from the existing ceiling with the result that a large number of landlords have switched over to this type of crop. There is no ceiling in Madhya Pradesh on mechanized farming, while in Andhra Pradesh, Assam, Bihar, Madhya Pradesh, Karnataka, Orissa, Uttar Pradesh and Punjab sugarcane farms operated by sugar factories are exempted from ceiling.

The Committee will, therefore, discuss the application of uniform ceiling laws for lands growing cash crops or mechanized farms. Land held by religious, charitable and educational trusts will also come under review.

In Andhra Pradesh, so far, 567 hectares of land have been taken over but not distributed. Assam has acquired nearly 30,000 hectares of surplus land but has not so far framed rules to implement the reduced ceiling level. In Bihar, no land has been declared surplus. Haryana has distributed only 22,000 hectares of the 70,000 hectares declared surplus while in Maharashtra 25,032 hectares of land out of 117,437 hectares declared surplus have been distributed. There have been reports of large-scale manipulation from Maharashtra.

There are similar reports from other States of non-distribution of land. The Committee is likely to go deeper into the causes which have prevented these States in implementing ceiling laws or delaying the distribution of surplus land.

Implementation of the recommendations of the Central Land Reforms Committee is likely to meet with resistance from many areas where pressure groups have grown.

The inadequate implementation of the agrarian reforms came under criticism recently. The Conference of Chief Ministers on Land Reforms in 1970 came to the conclusion that the biggest problems in implementing the land reforms measures were sub-tenancies, land records, level of ceiling on land holdings, payment of compensation to landlords and intermediaries, landless agricultural labourers, provisions of the Constitution of India and recourse by landlords to courts

of law. After detailed discussions, the following decisions were taken :

1. Abolition of all intermediaries to be completed by December 1970, in all the States.
2. State Governments to expedite the completion of making up-to-date record of rights.
3. To enact legislative provisions to make resumption of land by landlords difficult.
4. To expedite the implementation of the programme of consolidation of holdings.
5. To set up a committee at the Centre with the Agriculture Minister as chairman to watch the progress in the implementation of land reforms.
6. To set up similar State committees under the chairmanship of the Chief Ministers.
7. Common services like making available tractors to the community, should be provided for a block of say 80.94 hectares allocated to landless labourers.

Review of Progress : A review of the progress of land reforms reveals that progress is neither uniform nor complete in the States.

For instance, legislation enacted for the abolition of *inams* in Andhra Pradesh is yet to be implemented in the Telengana area. The *muttadhari* tenure is still to be done away with by law. Land declared surplus so far has not been taken possession of by the State for distribution. Similarly, in Bihar the sharecroppers (*bataidars*) who hold land or oral lease and are generally not recorded, do not enjoy security of tenure. No surplus land has been taken possession of for distribution. In Tamil Nadu, tenants of landowners holding more than 5.39 hectares of wet land or its equivalent have been given protection but other tenants are liable to eviction from half of their holdings on grounds of resumption by landowners for self cultivation. Comprehensive tenancy legislation is yet to be enacted. In Karnataka, provision has been made for bringing tenants of non-resumable land into direct relationship with the State; but this provision is yet to be enforced. Also pending enforcement is a provision fixing ceiling of 10.92 to 87.42 hectares on existing holdings and of 7.29 to 58.28 hectares on future acquisitions, depending on the class of land. In Orissa, the provision for ceiling on land holding at 8.09 to 32.37 hectares has not been enforced, so far. In Punjab, there is no ceiling on ownership. The Government has, however, been empowered to settle tenants on land cultivated by a person in excess of the permissible limit.

The landlord's right of resumption in Punjab and Haryana is

subject to the condition that the tenant is given alternative land upto the prescribed limit for cultivation. In other States, the tenants and sharecroppers have only interim protection.

Legislation for security of tenure has been passed in most of the States. While in some States like Uttar Pradesh, no resumption was permitted to landlords and tenants have substantial rights in respect of their entire holding, in other States, such as Gujarat, Orissa, Maharashtra, Kerala, Madhya Pradesh, Rajasthan and Manipur and Tripura, landlords were permitted to resume land for personal cultivation within a specified period in certain cases; in respect of the remaining area, the tenants got substantial rights. In Rajasthan, steps are yet to be taken for acquisition of surplus land. Ceiling on land holdings varies from 8.9 to 135.98 hectares. In West Bengal, a landowner may resume the entire area leased to a sharecropper if he owns less than 3.03 hectares and two-thirds of the area in other cases. Pending finalization of comprehensive proposals with regard to *bagadar*, eviction proceedings have been stayed.

The Central Land Reforms Committee is again seized of this question and has been examining the various aspects for quite some time. Although the land grab movement organized by the left parties during 1970 failed, it highlighted the fact that the wave of unrest is bound to rise. This is the view expressed in the World Bank's Annual Report on the Indian Economy placed before the Aid Club Meeting in Paris during June 1970. According to the Bank Report, first priority should be for a tenancy reform programme, centred on rent ceilings and security of tenure. It also urges enhancement of land revenue, and the taxation of larger incomes from farming at par with incomes derived from other sources.

Taking note of the long-term implications of farm mechanization, the report argues that items like tractors and harvesters should bear a higher tax, not only to augment the Government's revenue but also to make the mechnization process "bear some of its real economic costs."

VII. Unit of Cultivation

India is a country of small farmers, but not necessarily of small farms. This apparently paradoxical statement may be explained by the fact that 81.65 per cent of operational holdings are below 4.05 hectares, as much as 60.63 per cent of the land is cultivated in units of more than 4.05 hectares each.

The all-India average size of agricultural operational holding is 2.65 hectares. The average for different States varies considerably. Thus, at one end, Kerala has an average of 0.7 hectares and at the other Rajasthan has the highest average of

5.58 hectares. As a result of the growth in population and also of the land reform measures adopted since independence, several significant changes have taken place in the agrarian structure. The average size of agricultural operational holding has declined from 3.05 hectares in 1953-54 to 2.65 hectares in 1959-60. The 1961 Population Census records 2.99 hectares as the all-India average size of holding. The number of holdings below 2.02 hectares and the aggregate area comprised by them have increased during the period, the latter increasing at a relatively higher rate. At the other end, holdings of 20.23 hectares and above have declined in number and the area occupied by them has come down by as much as 30 per cent.

Nearly one-fifth of the holdings are below 0.46 hectares. But cumulatively they occupy only 1.59 per cent of the total cultivated area. At the other extreme, a little over one per cent of total operational holdings are of the size-group of 20 hectares and above, but they occupy as much as 12.13 per cent of the total area. It should, however, be noted that the size-groups of the holdings do not necessarily indicate their economic worth. The average size of holdings is generally small in areas where the yielding capacity of land is more because of assured rainfall, irrigation facilities, better quality of soil, etc. Holdings in such areas tend to get divided because a hectare of land with a relatively high yielding capacity is able to sustain more persons than an area whose yielding capacity is low. It has been shown that an inverse relationship exists between the yield per hectare and the average size of holding.

The numerical preponderance of small farms is thus essentially a consequence of excessive pressure of population on land and under-development of economy, rather than an excessive concentration of ownership.

A holding in agricultural parlance means the total area under ownership or operation of a farmer. A holding, however, rarely consists of a single compact farm. Usually, it comprises of several plots or fragments as they are called in India. The extent of fragmentation by size-groups of holdings is given below :

TABLE XIV

Estimated Number of Fragments per Operational Holding and Average Area on Each Fragment

Size-group (hectares)	*No. of fragments per holding*	*Average area of fragments (hectares)*
Upto 0·20	1.61	0.06
0.20—0.40	2.82	0.10
0.40—1.01	4.41	0.15
1.01—2.02	6.30	0.23

Legislative measure for consolidation of fragments have been enacted in all States (Table XV). Consolidation of holdings has been completed in Punjab and Haryana. The work has been largely completed in 45 out of 54 districts in Uttar Pradesh.

TABLE XV

Progress of Consolidation of Holdings

Area ('000 hectares)

State	*Level achieved cumulative*			*Fourth Plan programme*	*Level antici-pated 1973-74*	*Fourth Plan outlay (Rs. lakhs)*
	1960-61	*1965-66*	*1969-70*			
Andhra Pradesh	127	337	339	—	337	—
Assam	—	2	2	41	43	9.75
Bihar	24	71	85	165	236	25.00
Gujarat*	375	652	1,011	410	1,258	61.80
Haryana	—	—	3,273	3,273	121	**
Jammu and Kashmir	—	22	25	41	65	30.50
Madhya Pradesh	1,560	2,378	2,915	1,230	4,249	100.00
Maharashtra*	626	2,202	5,347	3,345	7,077	125.00
Karnataka	406	772	807	n.a.	1,322	55.00
Punjab	6,011	9,203	3,940	3,940	9,203	**
Rajasthan	571	1,722	1,752	—	1,744	—
Uttar Pradesh	2,201	6,482	9,480	3,400	12,281	2,260.00
West Bengal	—	—	—	710	710	82.25
Delhi*	83	83	68	—	83	—
Himachal Pradesh	66	149	155	82	267	86.50
Total	12,050	24,075	29,199	16,637	38,996	2,835.80

*Includes progress prior to April 1951

**Work completed

Consolidation of fragments, however, does not solve the problem of small holdings. It makes the operation of the existing holdings more economic. The problem of small holdings can be tackled at two different ends. First, further division of small holdings can be prohibited. Legislation for this has been enacted in several States, but for a variety of reasons—mainly the inheritance laws and lack of alternative occupations for descendants who are denied the share—implementation of the legislation is not effective. At the other end, small holdings may be pooled for the purpose of joint cultivation. This system has certain distinct advantages ; economy in the use of bullock power, improved credit-worthiness, capital formation through joint labour, etc. It, however, does not alter the adverse man-land ratio. With the increase in the size of cultivation unit, there would be economy in the use of labour and disguised unemployment will become open and apparent. In spite of repeated policy decisions to encourage co-operative joint farming, efforts in the direction have not yet yielded demonstrable results.

As on 30, June 1969, there were nearly 8,165 co-operative farming societies with a membership of 2.2 lakhs and covering an area of 4.18 lakh hectares. Of these, the number of joint farming societies was 5,300 with a membership of 1.2 lakhs and covering an area of 2.54 lakh hectares. The task is admittedly very difficult coming up as it does against strongly rooted social and psychological attitudes. In the ultimate analysis, the problem of small holdings will not be solved and may become even more acute—until a large percentage of rural population can be provided with non-farming occupations. This is the major task of economic development.

Legislation on Consolidation of Holdings : The legislation on consolidation of holdings in India has passed through three stages since its inception. In the first stage, it was wholly permissive and was aimed at facilitating transfers and exchanges mainly through the offer of some concessions and with the help of trained staff. The initiative to consolidate the small and scattered holdings was left to farmers themselves. Co-operative societies were encouraged to take up consolidation work with the help of the staff under the Co-operative Department on voluntary basis. As no commendable progress was made through these legislations, an element of compulsion had to be introduced in the second stage. The Central Provinces Consolidation of Holdings Act, 1928, for example, authorized the consolidation officers to confirm and implement a scheme of redistribution of holdings, when not less than one-half of the permanent land holders holding not less than two-thirds of the occupied areas, agreed to it. Such a scheme would then become compulsory and binding on all the permanent right holders in the

village. Similarly, if two-thirds of the tenure holders in a village apply for consolidation the application would be considered as one made on behalf of all the tenure holders in the village. The Uttar Pradesh Consolidation of Holdings Act, 1953, provided for compulsory consolidation at the initiative of the State.

The enactment of the Bombay Prevention of Fragmentation and Consolidation of Holdings Act, 1947, marked the beginning of the third stage in the consolidation legislation in the country. This Act provides for a greater element of compulsion in the enforcement of a scheme of consolidation in any given area regardless of the willingness or otherwise of the land holders of the locality. But at each stage of the consolidation programme, objections from the people affected are given due consideration by the Consolidation Officer. Though the timings of the three stages were different in various States, at present compulsory consolidation is accepted as the common policy objective in most of the States.

The broad frame-work of the consolidation programme has been the same for all the States, but within it there are many minor differences in the methods and the procedures and the administrative set up as well as in regard to recovery of the cost of consolidation. A noteworthy feature of consolidation programme of Punjab is that the object of consolidation in this State is not merely to consolidate small and scattered holdings into compact blocks, but also of replanning into compact blocks. It seeks to co-ordinate all-round developmental activities in the villages reserving sites for schools, playground, *Panchayat Ghar*, etc. Circular roads skirting the village and roads linking different villages are also laid. Thus it may be said that in Punjab consolidation truly forms part of a comprehensive plan of rational lay out of land surface. In Maharashtra, part of former Bombay State, incentives are provided in the form of various concessions to agriculturists whose lands are consolidated to enlist their participation. To enable the poor agriculturists to pay compensation that may become due from them on account of consolidation work, *taccavi* loans are advanced.

In order to encourage the States to expand their programmes for consolidation to the maximum scale administratively feasible, the Ministry of Agriculture provides assistance for consolidation work as part of the Grow More Food Programme. This amounts to 50 per cent of the net expenses incurred by the State Government, subject to an overall maximum of 25 per cent of gross expenditure on consolidation.

However, the programmes of consolidation work could not be extended to the entire area in all the States due chiefly to the inadequacy of the administrative machinery. It was, therefore, thought

advisable to give priority to those areas which have irrigational facilities, adequate rainfall or the areas which are likely to come under irrigation works. This shift in policy, though encourged and expedited consolidation work in the selected areas, has not been successful in accelerating the consolidation programmes as a whole.

Consolidation Problems and Prospects : During the operation of the consolidation programme during the last decades, several problems of practical importance have been noticed. These relate to the land records and administrative procedures. Preparing proper revenue records for the whole country is a stupendous task. But its absence has delayed the consolidation programmes to such an extent that as many as 10 to 15 years were taken to finish the consolidation work in some villages. Special legislative measures have been taken to expedite completion of land records.

The sentimental attachment of the cultivators to their ancestral land has rendered the exchange of land very difficult in many cases. There is also the psychological tendency of assessing the value of one's own land at a higher rate than that of others.

Recent thinking in the Planning Commission is that consolidation of holdings must be made compulsory under law. Prior to consolidation, the entire land in each village should be topographically surveyed and levelled to receive water wherever it is available, and irrigation channels and drains constructed for the entire village. If there is potential for additional minor irrigation (ground or surface) works these should be constructed, and in dry villages without any potential for water distribution, land levelling and counter bunding for soil and moisture conservation be effected. The laying of feeder roads will also be tried to the land development programme. The developed land should be so distributed among the owners that each one of them has his holdings in one or at the most two pieces.

The maintenance and operation of the works constructed as part of the integrated programme may be the joint responsibility of the State and the panchayats. Compulsory consolidation works must have affected million hectares of land which are envisaged to receive new irrigation benefits from the major, medium and minor irrigation schemes provided for in the Fourth Plan.

The expenditure involved in integrated programme covering 8-10 million hectares will be about Rs. 200 crores over a five year period and most of the resources for the purpose can be raised by diverting part of the allocations for agriculture, irrigation, flood control and rural electrification already made in the Plan.

VIII. Agricultural Practices and Techniques

Transforming traditional agriculture into a progressive one through improvements in cultivation practices and techniques is a complicated process ; results are slow and imperceptible. After World War II, a beginning was made under the Grow More Food Campaign to attempt a breakthrough. These efforts were stimulated further under the Five Year Plans through the Agricultural Extension Service and Community Development Projects. By 1963, almost the entire country was covered by extension agencies and their efforts were aided by programmes in other fields such as irrigation and production of fertilizers and farm implements. The latest is the introduction in 1967-68 of High Yielding Varieties Programme (HYVP) under the New Technology. These efforts, by and large, have yielded encouraging results ; the use of improved seeds, fertilizers, pesticides and improved implements has spread and the willingness of farmers to accept new techniques has increased. However, the breakthrough is far from complete ; substantial ground remains to be covered in several directions. But for wheat, yields in respect of other cereals and non-cereals have virtually remained stagnant for some time past. On the whole, traditional techniques still hold sway.

Traditional techniques are evolved over generations, they are continuously adjusted within a rather restricted frame to changing circumstances. As such, the farmers generally acquire a high degree of competence in the use of these techniques. The pursuit of traditional techniques involves less uncertainty. Since traditional techniques are passed on from one generation to the other, there is practically no material cost involved in acquiring them. Low cost and relatively less uncertainty of output are the two major reasons for the reluctance of the farming community to change over to the new and modern techniques.

Traditional techniques are evolved around efficient land use under meagre supply of capital. Low cost, self-reliance for supply and maintenance of production assets and intensive use of labour are the major characteristics of the traditional system of cultivation in India as elsewhere in most under-developed countries. Under these conditions, the implements used are simple in design. There are variations in design, adjusted in most cases to local conditions, to soil requirements and weather and to types of crops grown. In a vast country like India, therefore, there is a wide variety of implements. Seed and manure resources are largely locally developed and cultivation practices are adjusted to individual crops.

Crop rotation, double cropping, mixed cropping, preparation of seed-beds, and practices regarding sowing, inter-culturing and harvesting can be listed under cultivation practices. Even practices regarding watering, fruit culturing, fighting pests and diseases and general care of field and its soil can be included in this category.

Fallowing and Crop Rotation: Both fallowing and crop rotation practices aim at maintaining soil fertility. Continuous cropping drains away soil nutrients; fallowing is evolved to avoid this. Fallowing practices, therefore, vary depending on supply of soil nutrients and the rate of exhaustion of these nutrients by individual crops. In extreme cases of light soil, with scarce supply of soil nutrients, land is fallowed for as many as seven years after each harvest. On the other hand, in fertile soils land is allowed to rest every third, fourth or even a fifth year. As a result of the use of fertilizers and other improved methods of cultivation, area under fallows has been reduced to 20.8 million hectares in 1967-68 from 28.1 million in 1950-51.

The practice of crop rotations is evolved in order to avoid fallowing of land. However, rotation of crops is not a complete substitute for fallowing in all regions. Fallowing is included in the scheme of crop rotation once in three or five years in some cases. Where crops included in rotation supply the nutrients removed from the soil, the need for fallow may be postponed for a long time or where soil nutrients can be supplied from outside in sufficient quantity, fallowing may be completely eliminated. The most common rotations include legumes which help fixation of nitrogen in the soil and they follow such crops as cereals, cotton, etc., which remove nitrogen from the soil. As oil-seeds also help nitrogen fixation, they are rotated with grains. Heavily manured crops like sugar-cane or tobacco are rotated with cereals to take advantages of manurial value in the soil left over from the previous year.

Double Cropping and Mixed Cropping: Where irrigation facilities are available or where rain is heavy enough for adequate soil moisture to be retained till November, double cropping is practised. In regions of perennial water supply, even three crops are taken if resources permit. In double cropping, as in crop rotation, the farmer has an eye also on restoring soil fertility and hence the second crop is often one that fixes nitrogen. Much, however, depends on actual soil conditions. The practices regarding double cropping are, therefore, far too many for selecting typical ones.

Multiple Cropping: With the introduction of short-duration varieties and water management practices, the stage has now been set for a system of multiple cropping. An American variety of short duration cotton developed by the Indian Agricultural Research

Institute, for example, can be grown in rotation with wheat. One of the best Indian varieties of cotton MCU-5 can be grown only in South India. But radiation has helped produce a new mutant strain of MCU-5 which can be grown as successfully in the North as the parental variety in the South. The older varieties of cotton took 6 to 7 months to mature. The new mutant variety which will mature just in 5 months is as good as imported cotton. Similarly, new pulse varieties—*Pusa Ageti, Sharda* and *Mukta* all have a shorter period of maturity, the normal variety of *arhar* takes 10 months to mature while the new ones take just 5 months. The next phase of development is the scientific utilization of available resources in the form of land, water and the freely available modern inputs. As crop rotation is a healthy practice which could enrich the soil and increase the return to the farmer, some enterprising cultivators have been trying multiple cropping methods successfully. These techniques have spread widely among the cultivators in areas where irrigation is from wells or bore-wells.

New varieties of rice, oil-seeds, cotton and pulses have enabled the cultivator in crop planning through the "cafeteria approach". A great many cropping sequences have been evolved from which the farmer can choose according to the marketability of the produce, profitability of the rotation, soil and climatic conditions and his input mobilizing potential. It has been found that by introducing synergystic package comprising new varieties, new agronomic and pest control practices, better nitrogen fixation, the cultivator is able to resort to multiple cropping and at the same time harvest better yields.

There is scope for extending the multiple cropping practices in all areas where farmers have already been attuned to a higher level of agricultural technology through the HYVP. But such an extension without proper preparedness will create problems. However, before introducing the programmes on a large-scale, the Government of India has decided to launch Pilot Programmes of Multiple Cropping in 52 locations (in blocks) in different parts of the country.

These pilot projects will offer technical and financial help to the farmers in the areas covered and at the same time will serve as a sort of field research into the possibilities of growing new crops in different locations. Priorities will be given under the projects to demonstrations of multiple cropping sequences and adaptive research. This field research will ultimately help to perfect the crop patterns and the techniques for raising the crops in the different regions where the pilot programmes are located. Adaptive research and the demonstrations are deemed to be the basic support of the project and hence are fully financed by the Centre.

Livestock Farming : The Multiple Cropping Programme is quite comprehensive and includes livestock farming also where such ventures are likely to be profitable and suited local environments. These pilot projects are likely to offer guidelines for an integrated development of the areas where they are located, based on which the scheme could be implemented on a wide scale. Ultimately it is envisaged that the co-ordinated effort of the Governments, banks, input industries and the farmers will have the way for the multi-faceted development of the rural areas into agro-industrial complexes which could give a good return to the farmers and employment to the local population all round the year.

Mixed Cropping : In mixed cropping, crops are so mixed that soil nutrients removed by some are replaced by others at least partly. Since the growth period of the plants of different crops varies, the practice of a mixed crop enables taking two crops which are sown together but harvested at different times. They are so combined that the total output is larger than what it would be if only one crop was sown. Early maturing crops like *jowar* or *bajri* may be mixed with ground-nut, cotton or pulses, which mature late. When *bajri* is ready for harvest, the shoots of plants of other crops just begin to grow. The different crops grown together have varying susceptibility to variations in weather. Besides, the price-variability of these crops is also different in some cases; crops mixed together are so selected that their prices do not move parallel or the extent of their variations differs. When crops are mixed under the conditions, the farmer is able to reduce the yield and price uncertainties. The proportions of crops mixed varies from region to region and also according to the practice of mixing crops. The important crop mixtures are indicated below :

TABLE XVI

Important Crop Mixtures

State	*Crop Mixtures*
1. Andhra Pradesh	Cotton and korra or ground-nut, cotton and chillies, castor and ground-nut, *jowar* and *moong*, *jowar* and *urad*, *jowar* and *moth*, *tur* and cotton.
2. Assam	Paddy and maize, paddy and cotton,
3. Bihar	Wheat and barley, wheat and gram, gram and barley.

State	*Crop Mixtures*
4. Maharashtra	Cotton and *jowar*, *jowar* and *tur*, cotton and *tur*, *bajra* and *tur*, ground-nut and cotton, wheat and gram, ground-nut and *jowar*.
5. Kerala	Tapioca and beans, *ragi* and legumes, tapioca and coconut, areca-nut and banana, banana and tapioca, coconut and areca-nut.
6. Madhya Pradesh	Wheat and gram, wheat and linseed, linseed and gram, *tur* and cotton, *jowar* and *tur*, *kondon* and *tur*, wheat, linseed and gram, cotton and *jowar*, cotton and gram, *jowar* and *moong*, *jowar*, *urad* and *moong*, sesamum and *tur*.
7. Tamil Nadu	Cotton and chillies, ground-nut and red gram, cotton and millets, *cumbu* and black gram, *cholum* and horsegram, ground-nut and *cumbu*.
8. Karnataka	*Ragi* and *jowar*, *jowar*, castor and *tur*, *tur* and sesamum, *tur* and cotton, *jowar* and *moong*.
9. Orissa	Horsegram and mustard, green gram and linseed, mustard and linseed, *ragi* and maize.
10. Punjab	Wheat and gram, barley and gram, wheat and barley, *jowar* and *gaur*, *chari* and *moth*, maize and *senji*, *sarson* and wheat, *toria* and gram, *til* and cotton, *moth* and cotton, bajra and *moong*, barley and *masur*.
11. Rajasthan	Wheat and gram, wheat and mustard, wheat and barley, barley and gram, *jowar* and *moong*, *bajra* and *moth*.
12. Uttar Pradesh	Wheat and barley, wheat and gram, barley and gram, *jowar* and *arhar*, cotton and *arhar*, barley and peas.

State	Crop Mixtures
13. West Bengal	Wheat and gram, wheat and linseed, paddy and *khesari*.
14. Delhi	Gram and wheat, wheat and barley, barley and gram.
15. Himachal Pradesh	Wheat and barley, wheat and gram, wheat and mustard, maize and seasmum, maize and pulses, barley and gram.
16. Manipur	Peas and mustard, wheat and Bengal gram or pea, rice and chillies, cotton and ground-nut.

Other Cultural Practice : "Broadcasting" of seeds in the field is an old and orthodox method of sowing. Though it is gradually dying out, it still holds sway in predominantly tribal areas though it obtains in a few other regions also. In States like Orissa, paddy is "broadcast". It is argued that when the sowing season is brief, it is not possible to cover the entire area with line-sowing within that short period. In area where wheat is sown as a second crop and *ragi* sowing season is short, wheat also is sown "broadcast". In parts of Punjab both wheat and cotton are sown "broadcast". In these areas line-sowing is being introduced under the Five Year Plan programmes. In many parts of the country most of the crops except those transplanted are sown in line.

The technique of sowing "direct seeded rice" which is prevalent in the traditional rice areas, has now caught on in other areas as well and bids fair to be an important tool in bringing about the rice revolution. This technique helps to cut both time and cost as it does not entail any transplantation. The farmers find transplantation a costly operation and seem to be convinced that growing paddy directly from the seed is a better proposition. The "direct seeded rice" is grown in America in 100 per cent of the area under rice. In India, it is estimated, only 40 per cent would be under "direct seeded rice". In the Union Territory of Delhi the farmers had been so far used only to cultivation by transplanting the seedlings. For the first time, they are expected to switch over to "direct seeded rice".

Inter-culturing is done in line-sown crops with implements specially devised for the purpose. Enlightened farmers undertake frequent inter-culturing and weeding operations with implements. They undertake close weeding by hand and thus keep the growth of harmful

weeds to the minimum and turn the soil often enough to benefit from aeration, moisture and sunlight. The use of weedicides as substitute for intensive weeding has yet not spread, except for weeds that are persistent.

Weeds like *Kans*, once they strike root, spread rapidly, cover up the land and make cultivation impossible. Land covered by *Kans* goes waste. These weeds strike deep into the soil and ploughs with ordinary blades are of no help in removing them and reclaiming the land. These lands can be reclaimed only with the help of tractors and once reclaimed, continuous efforts are necessary to keep these weeds out. Frequent ploughing and weedicides are a good help. Land menaced by *Kans* weed is found mostly in Madhya Pradesh.

Tillage Practices : The primary object of tillage is to prepare a favourable seed-bed. The methods adopted for this purpose in India vary, but are usually effective. The land is worked carefully by the plough in the interval between two crops whenever there is the right quantity of moisture, which produces a layer of finely pulverized soil giving the most suitable conditions for germination. In heavy soils, the first tillage may consist of digging or deep ploughing. The cultivator's art consists largely in judging the right time to plough and in getting as much tillage done as is possible in the intervals between heavy rains or during the short period between the cessation of the rains and the sowing time.

Improved Seeds : Judicious selection of seeds and application of manure are both necessary for maintaining or improving land productivity. It is a common practice among farmers to select better grain for seed and preserve it till the next year. In years of scarcity due to crop failures, this process is disturbed. A large section of small farmers with poor means also finds it difficult to save grain for seed even in good years. They buy ordinary seed from the market. Improvement of seed was the first to claim attention of the State Departments of Agriculture. The progress achieved in research in this field was also comparable with that in any other country even as early as 1929 when the Royal Commission on Agriculture reported on the state of agriculture in India. However, the research was confined mainly to cash crops and particularly to cotton and sugar-cane. Wheat was the only grain for which improved strains were evolved. For wheat, the attempt was mainly to evolve a rust-resistant variety. With the introduction of the High Yielding Varieties Programme, cereals have taken precedence over cash crops. High yielding variety seeds of rice, wheat, *jowar*, *bajra* and maize are in the field since 1967-68. Recently, pulses, cotton and oilseeds have also received some attention and improved varieties of seeds have been evolved for them as well.

Seed Multiplication : The existing seed production and distribution arrangements were subjected to a detailed scrutiny by the Seed Review Team which reported in 1968. A number of shortcomings were brought to light. They included non-availability of quality breeders stock in adequate quantities as well as insufficiency of and lack of appropriate storage facilities on seed farms. The seed multiplication programme has not always yielded stock of the requisite purity. There have also been shortcomings in regard to the processing of seeds and the distribution arrangements.

The breeder seed is now sought to be produced in adequate quantities with the help of Indian Council of Agricultural Research and the National Seeds Corporation (NSC). The Corporation receives breeder seed from Research Institutions after the variety has been notified for release by the Central Varieties Release Committee. The production of foundation seed from the limited stock of breeder seed is taken up by NSC in the immediate next season to meet the immediate requirements. The Agriculture Universities are also involved in the process of the production of foundation seed.

For the production of certified seed, a number of agencies are involved including the State Seed Farms, Central Seed Farms, private seed producers and seed producers' co-operatives. It, however, takes one year before the foundation seed is made available to the various agencies which produce certified seed. The finally multiplied seed is thus made available to the farmers only in the second or third year. Although research in seed development started in 1929, no significant efforts had been made in the direction of a quality seed industry until 1963-64 when NSC was set up. In addition to the seed farms established by the State Governments, the Central Government has also set up large sized farms where the focus of activities has shifted to the production of seeds. Finally a beginning has been made in the organization of seed producers co-operatives through a scheme sponsored by the National Co-operative Development Corporation. The Tarai Development Corporation was established during 1970 with the assistance from the World Bank. In *kharif* 1970, paddy, maize, sorghum, and soyabean seeds were grown over an area of 4,000 hectares and in *rabi* 1970-71, 5,265 hectares were brought under wheat seed production. The total quantity of foundation seed produced by the National Seeds Corporation has increased from 4.37 tonnes in 1963-64 to 499.90 tonnes in 1970-71. Certified seed production increased from 2.44 tonnes in 1964-65 to 1574.16 tonnes in 1970-71.

Seed Distribution : Seed certification with its essential elements of field inspection of crops for varietal purity, proper isolation distance and supervision at harvesting has been generally lacking

for quite some time. Even though the Seeds Act was passed in 1966, certain sections of the Act could be brought into operation only in October 1969. A Central Seeds Committee has now been set up under the Act and a review of implementation of the Seeds Act in the various States was made at the Zonal Conferences during 1970-71. The State Governments are organizing training programmes for officials, extension agencies, traders, seed producers and farmers to bring home to them the salient features of the Seeds Act.

Recently an All-India Seed Certification Seminar was organized by the Agriculture Ministry to consider the establishment of a sound certification system in the country. The Seminar recommended that in each State there should be established a State Seed Certification Board independent of the agency producing and distributing seeds and of the enforcement of the Seeds Act. It also recommended that there should be a Central Seed Certification Board for co-ordinating the functioning of the State Boards and for laying down norms and standards for guidance. The recommendations of the Seminar have been accepted by the Government.

Area Under Improved Seeds : The object before the Fourth Plan was to cover nearly 72 million hectares under improved seeds—about 25 million hectares under high yielding varieties, 15 million hectares under multiple cropping and about 8 million hectares in assured rainfall areas and 24 million hectares in dry cultivated areas. High yielding varieties of wheat, rice, *jowar* and *bajra* were introduced during 1967-68 while those of maize have been made in the field for many years. Although a good deal of progress has been made under the programme, it has not, however, been uniform with regard to each of the crops. While nearly one-third of the area under wheat has been covered by the high yielding varieties, the corresponding figures for rice, *jowar*, *bajra* and maize are only 14.7, 5.4, 13.7 and 8.7 per cent respectively. The total area covered under wheat and rice during 1970-71 was more or less the same. The progress made in respect of wheat is remarkable in the sense that West Bengal, Orissa and Punjab have covered 88.4, 71.4 and 68.1 per cent of their wheat area under high yielding varieties. Haryana and Tamil Nadu have also half of the area covered. In the case of rice, on the other hand, but for Tamil Nadu and Jammu and Kashmir, the progress made is rather slow (Table XVII).

Among the non-food crops, cotton probably is the only crop, so far, for which improved seed is extensively used. The Indian Central Cotton Committee has been doing useful work in this direction. In regard to oil-seeds, progress on the whole is small, though regions like Andhra Pradesh, Tamil Nadu, Kerala and Punjab have shown

TABLE XVII

Area Under High Yielding Varieties—Cereals

State	Crop	1969-70			1970-71		
		Total Area ('000 hect.)	*Area Under High Yielding Varieties ('000 hect.)*	*(4) as percentage of (3)*	*Total Area ('000 hect.)*	*Area Under High Yielding Varieties ('000 hect.)*	*(7) as percentage of (6)*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Andhra Pradesh	Rice	3,300	522	15.8	3,396	599	17.6
	Jowar	2,724	21	0.8	2,511	81	3.2
	Bajra	602	23	3.8	584	73	12.5
	Maize	243	28	11.5	247	45	18.2
Assam*	Rice	2,243	102	4.5	2,100	150	7.1
	Maize	27	3	11.1	27	3	11.1
Bihar	Rice	5,493	324	5.9	5,232	405	7.7
	Maize	953	64	6.7	981	81	8.3
	Wheat	1,145	437	38.2	1,230	566	46.0
Gujarat	Rice	499	28	5.5	489	81	16.6
	Jowar	1.315	4	0.3	1,334	6	0.4
	Bajra	1,784	275	15.4	1,782	405	22.7
	Maize	291	8	2.7	275	12	4.0
	Wheat	433	17	3.9	577	41	7.1
Haryana	Rice	241	20	8.3	267	30	11.2
	Bajra	928	130	14.0	879	240	27.3
	Maize	109	12	11.3	112	10	8.9
	Wheat	1,017	440	43.3	1,118	600	53.7
Himachal Pradesh	Rice	97	18	18.6	105	32	30.5
	Maize	256	13	5.1	260	60	23.1
	Wheat	330	61	18.5	289	69	23.9

Contd.

TABLE XVII (*Contd.*)

State	*Crop*	1969-70			1970-71		
		Total Area ('000 hect.)	*Area Under High Yielding Varieties ('000 hect.)*	*(4) as percentage of (3)*	*Total Area ('000 hect.)*	*Area Under High Yielding Varieties ('000 hect.)*	*(7) as percentage of (6)*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Jammu and Kashmir	Rice	241	121	50.2	222	132	59.5
	Maize	256	3	1.2	269	12	4.5
Kerala	Rice	873	239	27.3	875	283	32.3
Madhya Pradesh	Rice	4,319	209	4.8	4,334	220	5.1
	Jowar	2,426	33	1.4	2,299	48	2.1
	Bajra	276	9	3.3	228	7	3.1
	Maize	62	21	3.4	590	22	3.7
	Wheat	3,176	150	4.7	3,328	220	6.6
Maharashtra	Rice	1,392	185	13.3	1,356	214	15.8
	Jowar	6,091	323	5.3	5,788	588	10 2
	Bajra	2,257	302	13.5	1,929	481	24.9
	Maize	54	8	14.8	42	9	21.4
	Wheat	865	152	17.6	882	202	22.9
Karnataka	Rice	1,106	121	10.9	1,160	162	14.0
	Jowar	3,154	147	4.7	2,594	182	7.0
	Bajra	567	22	3.9	510	55	10.8
	Wheat	327	36	11.0	305	47	15.4
Orissa	Rice	4,506	170	3.8	4,566	245	5.4
	Jowar	17	1	5.9	17	2	11.8
	Maize	72	5	6.9	72	10	13.9
	Wheat	15	7	46.7	14	10	71.4
Punjab	Rice	384	61	15.9	389	101	26.0
	Bajra	201	101	50.2	205	101	49.3
	Maize	563	81	14.4	572	81	14.2
	Wheat	2,162	1,418	65.6	2,200	1,499	68.1

TABLE XVII (*Contd.*)

State	*Crop*	*1969-70*			*1970-71*		
		Total Area ('000 hect.)	*Area Under High Yielding Varieties ('000 hect.)*	*(4) as percentage of (3)*	*Total Area ('000 hect.)*	*Area Under High Yielding Varieties ('000 hect.)*	*(7) as percentage of (6)*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rajasthan	Rice	115	10	8.7	119	16	13.4
	Jowar	1,167	9	0.8	1,184	10	0.8
	Bajra	4,346	191	4.4	5,127	290	5.7
	Maize	783	30	3.8	757	24	3 2
	Wheat	1,254	288	23.0	1,471	340	23.1
Tamil Nadu	Rice	2,695	1,142	42.4	2,686	1,518	56.5
	Jowar	732	10	1.4	749	12	1.6
	Bajra	459	69	15.0	490	80	16.3
	Maize	13	12	92.3	18	9	50.0
Uttar Pradesh	Rice	4,534	561	12.4	4,553	689	15.1
	Jowar	722	7	1.0	726	7	1.0
	Bajra	1.020	22	2.1	1,111	22	2.0
	Maize	1.505	81	5.4	1,497	25	1.7
	Wheat	5,378	1.640	30.5	5,863	1,863	31.8
West Bengal	Rice	5,016	459	9.2	4,949	567	11.5
	Wheat	240	174	72.5	320	283	88.4
All-India	Rice	37,680	4,342	11.5	37,432	5,501	14.7
	Jowar	18,605	555	3.0	17,435	936	5.4
	Bajra	12,493	1,155	9.2	12,907	1,769	13.7
	Maize	5,862	452	7.7	5,819	508	8.7
	Wheat	16,626	4,910	29.5	17,892	5,892	32.9

*Figures for Assam include those for Meghalaya.

considerable interest in spreading the improved varieties of oil-seeds. In the case of tobacco, there has been a shift from inferior to superior types like Virgina tobacco.

Manures and Fertilizers : Plants, like other forms of life, depend for their growth upon adequate supply of the necessary growth factors and the ultimate growth is conditioned by that factor which is scarce. In its tropical location, India enjoys a relatively long period of plant growth which helps the farmer to produce green manure or compost required for each field ahead of the main crop. In most other countries, this is possible only at the expense of a major crop during a complete growing season. Besides, potash—an expensive plant nutrient—is found in abundance in Indian soils. The main deficiency is in soil nitrogen resulting from intense biological activity in the soils under tropical conditions. At higher levels of production, particularly in the case of a crop like wheat, the emphasis now is on a balanced use of fertilizers which also includes micro-nutrients like zinc and copper. The Fourth Plan target for fertilizers has accordingly been put at 3.2 million tonnes of nitrogen, 1.4 million tonnes of of P_2O_5 and 0.9 million tonnes of K_2O. The consumption levels during 1970-71 as against this were 14.26 lakh tonnes of N, 4.61 lakh tonnes of P_2O_5 and 2.26 lakh tonnes of K_2O (Table XVIII).

The organic manures like farm yard manure, compost manure and green manures are locally available. Farm yard manure consists of cattle dung and other waste materials including foliage found in fields. In terms of soil nutrients, the average composition of farm yard manure obtained in India is of the order of 0.3 per cent of N, 0.15 per cent of P_2O_5 and 0.3 per cent of K_2O as compared to about 1.3, 0.3 and 1.0 per cent respectively of these nutrients in other countries. The low soil nutrient content is largely due to inefficient methods of preparation of farm yard manure. In most cases, the farm yard waste and dung are collected in uncovered heaps or dumped in ditches. Animal urine is rarely utilized for the purpose. Livestock and human excreta along with their urine, if fully utilized is a potential source of over 16.0 million tonnes of nitrogen, 6.1 million tonnes of P_2O_5 and 16.7 million tonnes of K_2O.

Composting of farm yard manure is recommended to improve nitrogen content and to increase the total organic material in the soil. Town compost comprises of such organic materials as night soil, slaughter-house refuse, etc. These are useful for maintaining the texture of the soil under Indian conditions. Whereas rural compost is produced and consumed locally, urban compost has to be transported to consumption centres and the transport costs and other difficulties limit its utilization.

TABLE XVIII

Consumption of Nitrogen in India During 1965-66 to 1970-71

('000 tonnes)

State	*1965-66*	*1966-67*	*1967-68*	*1968-69*	*1969-70*	*1970-71*
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Andhra Pradesh	78	155	147	180	311	286
Assam	3	2	3	4	7	9
Bihar	27	46	56	60	110	100
Gujarat	28	37	47	70	108	128
Haryana	—	(a)	31	53	52	72
Jammu and Kashmir	2	3	18	N.A.	4	5
Kerala	12	27	17	25	72	52
Madhya Pradesh	15	36	21	22	52	81
Maharashtra	6	6	95	130	150	199
Karnataka	33	46	60	60	132	156
Orissa	13	13	13	20	26	26
Punjab	55	59	90	132	174	201
Rajasthan	6	12	19	23	41	48
Tamil Nadu	82	89	129	108	222	259
Uttar Pradesh	84	71	169	230	459	400
West Bengal	27	30	34	30	56	73
Other States	104	104	85	62	15	18
Total	575	736 (28)	1,034 (40)	1,209 (17)	1,991 (65)	2,113 (6)

Notes : 1. N.A. : Not Available

2. Figures in brackets represent percentage change over the previous year.

3. (a) : Below 500 tonnes

Use of organic manures in conjunction with chemical fertilizers is essential for preserving the nutritional balance and fertility of the soil. Production and utilization of organic manures, therefore, constitute an important activity under the agricultural production programme. During 1970-71, the anticipated production of rural compost was estimated at about 155 million tonnes compared to about 145 million tonnes in 1969-70. Stress is laid on utilization of farm and cattle wastes, green leaves and shrubs and trees, water hyacinth and tank silt for composting or direct use under the urban compost scheme. About 4.3 million tonnes of compost was to be made available for distribution during the year 1970-71 under the scheme. The project for the setting up of pilot compost plants for manufacturing organic manure from city wastes as envisaged under the Fourth Five Year Plan is also expected to be initiated. Schemes for sewage/sullage utilization, which provide irrigation water as well as plant nutrients and organic matter are in progress.

Green manure is widely used in irrigated crops, particularly rice and wheat. For green manuring, crops like horsegram (*Dolichos biflorls*) and Bombay hemp (*Crotalaria juncea*) are grown before the main crop is sown and they are subsequently buried in the soil. The coverage under green manuring increased from 8.5 million hectares during 1969-70 to an anticipated level of 10.4 million hectares in 1970-71. The progress of green manuring has been encouraging in States like Uttar Pradesh, Andhra, Tamil Nadu and Orissa. The green manuring programme under the Fourth Five Year Plan has been included in the intensive rotations which are being developed.

Besides the above organic manures which are sometimes referred to as bulk organic manures, there are concentrated organic manures in use like oil cakes, bonemeal, dried blood, horns and hoofs, etc.

The most important nitrogenous chemical fertilizers are ammonium sulphate, ammonium nitrate, ammonium calcium nitrate and urea. The important phosphatic fertilizers are superphosphate, rock phosphate, and ammonium phosphate. In the past 50 years, several types of nitrogenous and phosphatic fertilizers were introduced in India and tried at different experimental stations. But a systematic effort to manufacture and popularize them was under the Five Year Plans.

Manufacture of nitrogenous fertilizers in India was taken up on a big scale with the Sindri Fertilizer Factory going into production in 1951. Since then there has been a big spurt in the production and consumption of fertilizers (Table XIX). According to the annual review of production and consumption of fertilizers in 1970-71, the output of nitrogenous fertilizers was 879.8 thousand tonnes. Consumption during the period was about 1,425 thousand tonnes, the production

TABLE XIX

Production, Imports And Distribution Of Fertilizers

1952-53 to 1969-70

(Tonnes)

Year	Nitrogen (N)			Phosphoric Acid (P_2O_5)[1]			Potash (K_2O)	
	Produced	*Imported*[2]	*Distributed*[3]	*Produced*	*Imported*	*Distributed*[4]	*Imported*	*Distributed*[5]
1952-53	53,067	44,294	57,822*	7,445	—	4,552	3,311	—
1953-54	52,905	19,346	89,287*	13,831	—	8,261	7,490	—
1954-55	68,478	19.984	94,810*	14,345	—	15,027	11,097	—
1955-56	76,859	53,370	107.495*	12,365	—	13,018	10,295	—
1956-57	78,788	56.768	123,054*	17,585	—	15,874	14'791	—
1957-58	81,144	110,100	149,019*	25,785	—	21,922	12,786	—
1958-59	80,766	97,540	171,988*	30,987	—	29,490	22,366	—
1959-60	83,694	142,335	229,326	51,407	3,819	53,930	33,103	21,342
1960-61	111,987	171,926	211,685	53.722	128	53,134	24,845	29,052
1961-62	154,326	142,920	291,536	65,360	645	63,932	30,381	27,982
1962-63	194,194	229,462	360,033	88,300	7,959	81,385	44,276	36,503
1963-64	219,072	197,691	(406.976) 425,872	107,836	12,267	(116,674) 120,847	64,060	(50,570) 51,860
1964-65	243,230	256,517	(434,473) 492,249	131,021	12,293	(147,652) 148.530	57,176	(70,440) 71,640

TABLE XIX (*Contd.*)

Year	Nitrogen (N) *Produced*	*Imported*[2]	*Distributed*[3]	Phosphoric Acid (P_2O_5)[1] *Produced*	*Imported*	*Distributed*[4]	Potash (K_2O) *Imported*	*Distributed*[5]
1965-66	237,889	376,270	(547,363) 582,588	118,779	21,766	(132,178) 134,075	93,641	(77,746) 89,631
1966-67	308,993	574,628	(838,736) 830,171	145,678	129,158	(248,602) 274,601	143,337	(115,710) 133,666
1967-68	402,648	975,897	(1051,785) 1135,655	207,145	370,776	(422,096)** 438,168**	276,465	(205,578) 205,750
1968-69	562,981	780,052	1222,398 (1,253,953)	213,229	90,828	296,140 (318,351)	165,183	164,077 (177,567)
1969-70	730,428 (704,332)	574,428	1006,878 (1040,198)	223,686 (224,712)	88,508	236,767 (234,989)	99,928	151,227 (131,919)

Note : (i) The all-India figures have been arrived at by converting fertilizer materials into nutrients.

(ii) From 1963-64 onwards brackets figures are on April-March and others on July-June basis.

1. Excludes data in respect of bonemeal and rock-phosphate.
2. Figures from 1952-53 to 1957-58 are on April-March basis.
3. Figures from 1952-53 to 1956-57 relate to calendar years ending in the first half of the period stated while from 1957-58 to 1962-63 they are on April-March basis.
4. Figures from 1952-53 to 1957-58 refer to calendar years ending in first half of the period stated while from 1958-59 to 1962-63 they are on April-March basis.
5. In the case of potash from 1952-53 to 1958-59, in absence of distribution figures the quantity imported is taken as distributed. Figures relate to financial year April-March.

* Allotments of fertilizers under the "Central Fertilizer Pool".

** Figures incomplete for lack of details of despatches relating to production of 15,662 tonnes of N and 8,546 tonnes of P_2O_5.

during 1971-72 was estimated at 1,042 thousand tonnes against projected offtake of 1,625 thousand tonnes.

The phosphatic fertilizers produced and consumed in India are mostly in the form of superphosphate. Until 1956, these fertilizers did not become popular. But it was realized that continuous use of nitrogenous fertilizers alone would deplete the phosphorus content of the soil unless the latter was adequately replaced. Hence, the Government propagated the use of balanced fertilizers containing all plant nutrients in the form of manure mixtures. Production of phosphatic fertilizers rose from 223.3 thousand tonnes in 1969-70 to 248.8 thousand tonnes in 1970-71. The growth in the output of phosphatic fertilizers is largely due to the improvement in the availability of the basic raw material—rock phosphate from mines in Rajasthan and Andhra Pradesh.

The consumption of potassic fertilizers is mostly in the form of muriate of potash and sulphate potash which are mainly imported, local production being negligible. The consumption of potassic fertilizers grew from 209.8 thousand tonnes in 1969-70 to 226.2 thousand tonnes in 1970-71.

There have been region-wise disparities in the production and consumption of fertilizers. The Southern and Northern regions accounted for more than a third of the country's consumption of all nutrients, with the South being marginally ahead due to the comparatively higher share in the offtake of potassic and phosphatic fertilizers.

The present installed capacity is of the order of 1,344 thousand tonnes of nitrogen and 421 thousand tonnes of phosphatic fertilizers (in terms of nutrients). Additional projects under implementation would have a capacity of 1,848 and 778 thousand tonnes respectively for the two categories of fertilizers. India has in a way to invest Rs. 225 crores a year to meet its growing demand for fertilizer. The problems faced by developing countries like India in the field of fertilizer industry include external and internal finance, foreign exchange needed for import of spare parts, lack of properly trained personnel and marketing and credit facilities. At the top of that, farmers have also to be educated on the need to use fertilizers.

Promotion Effort: A number of measures have been taken by Government to promote the optimum consumption of fertilizers. Fertilizer manufacturers and State Governments have been asked to hold demonstrations of the characteristics of various types of facilities and organize training of extension personnel, fertilizer dealers and salesmen. A syllabus has also been drawn up for training

fertilizer dealers. The State Governments have been asked to strengthen and utilize fully their soil testing facilities so that soil test results are made available to the farmers within 10 to 15 days after the receipt of the soil sample.

Under the Programme of National Demonstrations and in the context of Farmers' Training and Education (with special emphasis on practical scientific demonstrations on farmers' fields) close attention is being given to the application of prescribed dosages of fertilizers in a balanced way. Information and publicity media are being used for promoting larger fertilizer consumption. The Government have also under consideration proposals for setting up a Fertilizer Promotion Council as a joint venture of the Government of India, State Governments, the industry and agro-industries for promoting optimum and balanced use of fertilizers.

The Central Fertilizer Control Laboratory is being established which will act as a reference laboratory and will train the inspecting staff of the State Governments in drawing and analyzing fertilizer samples.

Crop Diseases, Insects and Pests : The loss entailed as a result of damage caused by diseases, pests and insects to crops at various stages of growth from sowing to harvesting, storage and in transportation is estimated to be 20 per cent of total crop output. The prevention of this damage is therefore important.

Nearly 40 diseases and over 85 species of insects are known to attack the rice crop in the field and in storage. The most widely prevalent and destructive diseases are blast, helminthos, poriose, stem rot, foot rot and physiological root rot. Among the insects and pests, stem borers, swarming caterpillars, mispa, grass hoppers, gundhi bugs and gall fly are most prevalent and most destructive in the field. During storage nearly 12 different insects damage the grain.

In the new agricultural technology, plant protection has acquired an added significance. This is due both to technical and financial reasons. In the case of high yielding varieties, conditions which are conducive to the growth of the plant population are also favourable for weeds, pests, and diseases. Moreover, the high yielding varieties necessarily entail a high cost of cultivation and hence a cultivator can ill-afford to lose his crop. If full benefit is to be derived from the costly inputs, plant protection measures in various forms, such as seed treatment, weed control and post-sowing prophylactic treatment, must be made an integral part of agriculture practices.

Millions of tonnes of wheat were destroyed by a big rust epidemic in 1947 and 1954. In 1950-51 and 1957-58 the potato disease appeared over a wide area in the plains of Bihar, Uttar Pradesh and Punjab and caused a loss of over 50 per cent of the crop. There was

a sudden eruption of pests and diseases on an area of 1.0 million hectares during 1969-70. The area affected during 1970-71 was nearly 4 lakh hectares spread over the States of Andhra Pradesh, Bihar, Jammu and Kashmir, Madhya Pradesh, Maharashtra, Karnataka and Rajasthan.

Four types of methods are adopted for preventing damage to crops by insects and pests. They are classified as : (1) Quarantine, (2) Biological Control, (3) Cultural Methods, and (4) Chemical Treatment.

In the past, owing to lack of efficient quarantine arrangements, injurious insects and pests entered the country and spread widely. Quarantine and fumigation stations have now been set up at Madras, Calcutta and Bombay. Besides, based on the knowledge of the existing pests and diseases in the country, plant quarantine measures are being taken to prevent the entry of diseases and pests through inter-State movement of plant materials.

Biological control of insects and pests, in which the natural parasites and predators of the pests are exploited to destroy the pests, has met with considerable success. A well-known example of such control is the use of the cochineal insect for the eradication of the prickly pear. Considerable work has been done in the country after independence on the science and practice of biological control ; pest control methods have been in operation against sugar-cane borers and nephenthes of coconut in the South. Biological control research is conducted at the Indian Agricultural Research Institute.

In the case of some pests and diseases, physiological and agronomical methods are used to control their incidence. Adjustment of planting dates, mixed cropping or crop rotation, judicious manuring or supplying balanced fertilizers, controlled irrigation, etc. constitute economical and fruitful methods of protection against the disease or pest incidence. A change in the time of sowing wheat was a major factor in Hessian fly control and a similar method has dealt effectively with the Tirak disease in cotton. The limitation of the method is that a variation of cultural practice which prevents the onset of the disease or pest has also an adverse effect on crop yields and the cultivator prefers the former risk at times.

Another very successful line of the attack is the cultivation of varieties resistant to pests and diseases. Seed treatment is the first critical stage of plant protection according to the Fourth Five Year Plan. Dressing the seed with chemicals before sowing protects it from seed and soil borne diseases and is essential for increase of plant population which is responsible for the yield potential of the new varieties. Seed treatment is proposed to be given to 26 million hectares during the Fourth Five Year Plan.

The use of insecticides and fungicides is adopted extensively in the country for eradication of pests and diseases. Powerful insecticides like chlorinated hydrocarbon compounds and organo-phosphorous compounds are revolutionizing the methods of control of insects and pests. Some of the organo-phosphorous compounds are systematic in their action as they are absorbed by plants and are translocated to different parts of the plant. Likewise, systematic fungicides are also being developed. Many antibiotics have been used successfully for the control of bacterial plant diseases.

Laboratory experiments have proved conclusively that by spraying a mixture of a paraffin-based oil and insecticide, the white fly can be killed almost instantaneously. At the U.P. Agriculture University's Experiment Station, a plot of pulse crop sprayed with the mixture has remained unaffected though it is surrounded by crop affected by yellow mosaic.

Post-sowing intensive prophylactic treatment constitutes the main plank of the plant protection programme. In the Fourth Plan, a target of 34 million hectares is envisaged for this purpose. In order to be effective, this programme will require two main supporting measures. The first relates to organization of a surveillance and warning system. The second is intensive research on determination of the most effective chemical control measures for various pests and diseases. It is intended to give attention to both these aspects in the Plan.

Weed control is another important aspect of plant protection. Such control through manual labour has obvious limitations in high density crops. Hence there is need for increased stress on chemical weed control measures. Since 1964, co-ordinated control trials on paddy have been conducted with satisfactory results. The Plan envisages a target of 2 million hectares for weed control.

Besides seed treatment, weed control and prophylactic spraying, other measures envisaged relate to rat control and control of epidemics. For anti-rat operations, a target of 10 million hectares is envisaged. For all the plant protection programmes taken together, it was contemplated that about 80 million (gross) hectares will be covered by the end of the Plan.

Effective adoption of plant protection measures by cultivators is often inhibited by two among other factors, namely, lack of technical skill in the use of pesticides and ineffectiveness of individual operations. In this context, the Plan envisages strengthening of the official plant protection services and expansion of training facilities. Steps will also be taken to strengthen the agro-aviation arrangements both in the public and the private sector. In the endemic areas, repeated aerial spraying is envisaged for eradication of pests and

diseases. Such spraying is proposed to be financed by the Centre while the cost of the material used will be borne by the States.

Unlike chemical fertilizers, plant protection material is still largely distributed by official agencies. It is estimated that, at present, about 50 per cent is handled by Government personnel. Co-operatives and panchayats, account for about 25 per cent and the balance is retailed by private dealers and manufacturers. It is estimated that by 1973-74 the annual consumption of pesticides should go upto 66,000 metric tonnes of technical grade material as against the present annual consumption of 40,000 metric tonnes. If this is to be accomplished, vigorous action by the industry, Government and the co-operative organizations will be necessary. Plant protection measures benefited a gross area of 48 million hectares during 1969-70. The target for 1970-71 was fixed at 52 million hectares.

The locust menace causes considerable damage. During the present century, there have been five locust cycles during which Rajasthan, Punjab, Saurashtra, Kutch, Gujarat, and parts of Maharashtra State, were affected. The permanent homes of locusts lie in extensive belts in Africa and countries of West Asia. Locusts attack not only agricultural crops but also forests and all types of green vegetation. The Government of India have maintained a Central Locust Organization to fight this menace and adopted measures which include spraying and dusting of chemicals on a large scale in the breeding areas in India. The attacks on crops in the cultivated area met by mechanical and chemical methods such as the destruction of eggs by exposure after ploughing, burying them in trenches, etc. To intensify the campaign, aeroplanes, helicopters and other equipment are being obtained under the Technical Assistance Programme.

Implements : Indian tillage implements are few, simple in design and indigenous in pattern and locally manufactured. The design of each implement varies in detail from region to region to suit local needs and conditions. Not all implements are used in all regions. The use of some is restricted to a few. Since the commencement of the Third Plan, a number of steps have been taken to develop improved agricultural implements. While some success was achieved, parts of the programme continue to suffer from a variety of shortcomings, such as lack of suitable designs, high cost of manufacture and lack of adequate facilities for sale and repair. These problems will receive attention through intensification of research in agricultural engineering, and improvement of arrangements for fabrication and distribution of implements. Considering that there are nearly 70 million draught bullocks, the scope for improved animal drawn equipment is enormous and their contribution to productivity can be significant. It is estimated that animal drawn seed drills and planters can save

upto 40 per cent of the time compared with broadcast sowing. Hence stress will continue to be laid on the programme for animal drawn implements and hand tools.

The most common implements are: (i) ploughs, (ii) harrows, (iii) clod-crushers, (iv) seed-drills, (v) hoes, (vi) rollers, (vii) levellers, (viii) riders, and (ix) harvesting implements.

Plough is the primary implement used all over India. *Desi* ploughs have almost a common design and they differ mostly in size, depending on the type of soil and the size of the bullocks used in particular areas. The heaviest ploughs are found in the black cotton soil areas of India. The *desi* plough is almost like a western style cultivator.

All indigenous ploughs are similar in design, but vary considerably in size and weight to suit the prevailing soil types, ploughing conditions and the weight and height of draught animals in the locality. Heavy indigenous ploughs are being gradually replaced by mould board ploughs which have greater operational efficiency. The blade of the indigenous plough is designed to plough upto 15 cm. deep. It stirs but does not turn the soil. The working draught varies from 27 to 159 kg.

The harrow is mainly used as a secondary tillage implement. It supplements the work of a plough for preparing the seed-bed for crops and for covering the seeds after sowing. In lighter soil, harrows are used for ploughing also. The useful life of a harrow ranges from 2 to 6 years. The clod-crushers are used immediately after ploughing and harrowing. Heavy wooden logs or planks are used for crushing the clods. The practice of drilling seeds is fairly wide-spread throughout India except in Assam and some parts of West Bengal, Bihar, Kerala, and the Konkan coast. Transplants paddy is a major exception ; drilling is not possible in its case. The simplest seed-drill consists of a vertical tube with a seed-bowl and is fitted with a shoe-piece and a wearing point at the lower end. The simple type of seed-funnel is used mostly in tribal areas. There has been a steady growth in the demand for seed-*cum*-fertilizer drills and seed-planters which are not yet readily available in the country. Efforts are being made to produce them in the country.

The hoe is an all-purpose farm implement used for many cultural operations—preparing small seed-beds, for forming ridges, for bunds, and water courses and channels. It is also used for removing stalks of harvested plants, for harvesting root crops such as potato and ground-nut and for thinning of "broadcast" as well as drilled crops. All the indigenous manually and bullock drawn hoes are generally manufactured by the village artisans and the material for its construction is supplied locally. The cost and durability of a hoe are similar to that of a harrow.

The use of rollers is wide-spread particularly in areas where dry farming is practised in order to make the seed-bed compact and thereby facilitate the germination of seeds.

The most common type of harvesting implement is the hand sickle with a plain blade. Scythe, an improvement over sickle, is not in common use.

Improved Implements : Marginal changes in the design of different implements have been introduced at various stages of development. Attachments to seed-drill help spreading manure along with seeds, attaching wings to harrow to perform close weeding and iron mots (water lift) instead of leather mots are some of the improvements introduced by local craftsman to meet the changing demand. The Departments of Agriculture in States also carry out engineering research and they have produced iron-plough, Olpad hoe, Baroda hoe, chaff-cutter, winnowing fan, plant-pullers, improved sugar-cane crusher, improved furnace for boiling sugar-cane, dust guns to spray pesticides, etc. Some of the improvements have been adopted from designs obtained from advanced countries and adopted to local needs. As a result of research, some implements like the simple axe and the spade have undergone changes in design. The use of shovel in place of the spade makes lever action less arduous. Carts have now pneumatic tyres to reduce the strain on animals. Not all these improved implements are used all over the country : chaff-cutters are widely used in Punjab, and iron-ploughs in Saurashtra and Maharashtra. There are other improved implements which are mostly of imported design such as tractors, oil-engines, electrical motors, power driven sugar-cane crushers, etc.

As for the power driven machinery, use of tractors and other agricultural machinery and equipment is gaining popularity. The number of tractors in use has doubled in the last 5 years rising to the level of 108 thousand units in 1969-70. In the same period the number of indigenously manufactured tractors has nearly doubled to the level of 17.1 thousand. The demand for power-tillers and combined harvestors is also rising.

Successive bumper crops of wheat during the past few years and inclement weather immediately after harvesting of wheat has necessitated the introduction of combined harvestors and threshers. To avoid harvesting losses, it has been decided to import labour saving harvesting machines; arrangements have been made for the import of 75 combined harvestors. The programme for 1970-71 was to import about 300 combines both on cash and barter basis. Power-threshers, which were concentrated mainly in Punjab have become quite popular in the neighbouring States of Haryana, Uttar Pradesh and Rajasthan. Power paddy-threshers were introduced

only very recently and are gaining popularity in the eastern and southern States. Power maize-shellers are in common use in Punjab and are also getting popular in Maharashtra and Andhra Pradesh.

There are at present 5 units which produce tractors in the country in the range of 20-25 h.p. With a total capacity of 30,000 units per annum, actual production has been well below 20,000. Further capacity of 31,000 units has been sanctioned and the Agriculture Ministry is of the view that this will fully meet the internal demand for tractors.

Agro-industries Corporations have been set up in all the States except Nagaland and Meghalaya. In the initial stages, all these Corporations concentrated mainly on the distribution of tractors, power-tillers and pump-sets and other items of agricultural machinery on cash and hire-purchase basis. Presently all imported tractors are being distributed through these Corporations with a view to eliminating black-marketing and ensuring their supply to farmers at fair and reasonable prices. The Corporations have also been directed to set up agricultural machinery hiring centres with a net-work of sub-centres and workshops for providing hiring facilities to medium and small farmers. The Corporations in Assam, Andhra Pradesh, Bihar, Haryana, Kerala, Karnataka, Uttar Pradesh, Madhya Pradesh, Orissa, Tamil Nadu, Punjab, Rajasthan and West Bengal have set up 71 hiring centres and workshops. Some Corporations have also introduced mobile workshops for providing after-sales facilities in the interior where regular workshops do not exist.

IX. Finance

Agricultural Credit Situation: The salient features of the present day agricultural credit situation in the country are stated here briefly:

1. The majority of Indian farmers are small holders and belong to the low income group. According to creditworthiness, the agriculturists may be classified into three categories: (a) Creditworthy—those who satisfy all sound banking rules to obtain adequate and necessary credit; (b) Potentially Creditworthy—those whose income can be sufficiently raised to make them fully creditworthy by providing proper credit and technical assistance; and (c) Non-Creditworthy—those who lack sufficient land and do not have any alternative source of income and whom credit alone cannot help in improving their income to the extent that they may be able to make their both ends meet. Most of the farmers fall in

the second category. For certain kinds of loans, e.g. loans for land reclamation, irrigation, permanent improvements, and purchase of heavy and costly equipments, a large number of farmers in the first category may also have to be downgraded to the second one.

2. The inadequate growth of institutional credit agency and extreme dependence of the farmer on the private money-lender have led to very unpleasant consequences. Indian agriculture is suffering badly from want of capital. It is the mainstay of about 70 per cent of the total population, yet it is the most capital starved industry in the country. This has been responsible for the static or even retrogressive condition of Indian agriculture today. The lack of capital in agriculture is not a new malady; it is very old and chronic. The credit requirements in farming are so large that private individual resources can never fully meet them. If, in the past, the drawbacks resulting from the lack of adequate capital were not so obvious, it is because agriculture then followed a subsistence and extensive cultivation pattern and money had not assumed the importance as it has now. Today, for achieving the objectives of intensive cultivation, high yields, increased income, adoption of technical and technological improvements, the use of more and more capital in farming is an absolute necessity.
3. The cumulative effect of agricultural debt legislation during the last quarter of the century and of the more recent land reform measures has been further to contract agricultural credit facilities.

Need for an Institutional Credit Agency : For progressive agriculture, adequate agricultural credit facility is essential. It is axiomatic that the credit requirements in agriculture cannot be met by private individual resources alone even when the money-lender is not fettered by any legal restrictions in his credit operations. Moreover, profit being the sole guiding consideration of the private agency, credit from the money-lender cannot be canalized to uses which are socially most desirable nor it can be made available to farmers who are not creditworthy under strict banking rules. The returns from capital investment on certain types of agricultural improvements are so low that these improvements can only be taken up if credit is made available at exceptionally low rates of interest and for a long term. As the agriculturist needs credit at specially favourable terms, an effective control over its use becomes a social obligation. That is why public and expert opinion now favours an institutional agency for agricultural credit. Institutional credit system has actually been

developed with liberal State assistance in most countries of the world during the present century.

Another strong point in support of the institutional system is that agricultural credit is no more interpreted in the narrow sense of merely granting of loans. It has a much broader cannotation now and combines in itself both technical guidance and planning of the farm business. The farmer is not only to be helped with a loan but he has also to be given the necessary guidance to make the most effective use of it so that he may maximize his earnings from land. It is increasingly felt that, if the farmer who is taught the improved methods of farming, is not provided with the means for carrying them out, no useful purpose will be served by merely expanding the agricultural extension services. Therefore, the credit services and the agricultural extension services in other countries work in close collaboration. There can be no doubt that to dispense with this type of credit among the farmers and also for its recovery, there cannot be a more suitable organization than that of village co-operatives. The idea of co-operation, particularly in agriculture is inherently sound. If life has been lacking in agricultural co-operatives so far, it is mainly due to poor management for which lack of proper internal leadership is chiefly responsible. This and the absence of a well defined co-operative loan policy together explain the paradox of funds lying idle with co-operatives and agriculture suffering for want of finance.

However, for improving management through either the development of internal leadership or official assistance, the situation is now favourable. Under various schemes such as Community Projects, National Extension Blocks and reorientation of education with greater agricultural bias as in Uttar Pradesh, the services of a very large number of trained village and group level workers have become available for proper guidance and even actual management of the village co-operatives.

Credit Agencies: Besides the private money-lenders and professional agriculturists etc., the main source of credit till recently has been the Government and co-operatives. These institutions played only a small role for quite some time. Co-operatives provided only 3 per cent of the borrowings in the year 1950-51. This went up to 15.5 per cent during the year 1961-62 and there has been a remarkable improvement during the last decade. As a result, co-operatives today account for as much as 30 per cent of the total credit requirements of the cultivators.

During 1969-70, short and medium-term credit advanced by these co-operatives was estimated to be of the order of Rs. 526.74 crores and it was expected to go upto Rs. 615.04 crores by 1970-71. In the

sphere of long-term developmental finance for agriculture, land development banks constitute the main source for credit. These banks which provide credit to farmers for land development, minor irrigation and purchase of expensive farm machinery, have also made sufficient progress. While the quantum of fresh long-term loans issued by the Co-operative Land Development Mortgage Banks was Rs. 58 crores in 1965-66, it was estimated to be Rs. 155 crores in 1969-70 and is expected to be still higher during 1970-71. The public sector institutions *viz*, the Reserve Bank of India, Life Insurance Corporation and the State Bank of India provide support to the debenture floatation programme of Co-operative Land Development Mortgage Banks. The Government of India have also been purchasing the debentures during the Fourth Plan period to fill the gap in the availability of long-term resources for investment in agriculture. An amount of Rs. 17 crores was utilized during the year 1970-71.

Taccavi loans are being provided by some of the State Governments. Procedures for distribution and recovery of *taccavi* loans, by and large, approximate to the co-operative loans. The Government of India also provide short-term credit to the State Governments for giving *taccavi* loans. During the year 1970-71, a budget provision of Rs. 60 crores was made for this purpose, which was utilized in full.

Institutional finance for agricultural development is also being supplied by the 17 Agro-Industries Corporations set up in various States. Many of these Corporations provide additional line of credit to cultivators for the purchase of tractors and agricultural machinery under hire-purchase schemes.

The Agricultural Refinance Corporation was given statutory shape on May 1, 1963 with an issued share capital of Rs. 5 crores. Like other financial agencies, it does not involve itself in direct financing to the agriculturists but operates through the established long-term financial institutions in the co-operative sector. The Corporation's special schemes are intended to be implemented within compact areas with close supervision, economy in administration, co-ordination among technical and non-technical agencies and necessary State assistance. In recent years, it has been playing an extending role in supporting agricultural development specially minor irrigation.

The gigantic financial cost of ensuring complete modernization of India's agriculture will have very little chance of being realized unless there is some dramatic change in banking traditions and the rural credit system. The total short-term credit needs by the end of 1973-74 were estimated at around Rs. 2,000 crores, which no single institution could possibly finance. Since co-operatives alone could

not meet this challenge, it was thought necessary to bring in commercial banks which had so far played only a minor role in agricultural finance.

Commercial Banks : With the green revolution in agriculture in *1967-68, there arose the need for an increasing quantum of credit for* procurement and distribution of various inputs. The present set up of co-operative credit structure, with the primary agricultural society as its base, is unable to absorb all the credit provided to it. There were problems of overdues. The requirements of the agricultural sector are so large and diverse that both the commercial banks and co-operative banks can play a mutual complementary role.

In areas where central co-operative banks are weak, the commercial banks have now been brought into the picture for financing good working primary agricultural credit societies, which were starving for want of finance from major financing institutions. This scheme has been introduced in the States of Andhra Pradesh, Haryana, Madhya Pradesh, Karnataka and in selected districts of Uttar Pradesh.

Commercial banks have also started playing a larger role in the financing of agricultural development. The level of direct financing by commercial banks for agriculture rose from about Rs. 44 crores on June 30, 1969, to Rs. 184 crores on June 30, 1970, and further to Rs. 217 crores on September 30, 1970. The total number of accounts under direct finance were 8.18 lakhs on June 30, 1970, which went upto 9.54 lakhs by September 30, 1970.

The Agricultural Finance Corporation set up by the major commercial banks, before nationalization, has also been playing a significant role in the field of agricultural credit. The total outlay on schemes approved by the Agricultural Finance Corporation has risen to the level of Rs. 108.22 crores for 25 schemes as on July 10, 1970. This Corporation guides major commercial banks for taking up special projects for agricultural development and also acts as a co-ordinating agency. The National Level Consultative Committee formed in June 1969 is helping the commercial banks and financing agencies in this regard. Among the schemes for which loans have been sanctioned by this Corporation, special mention may be made of seven loans amounting to Rs. 39.39 crores to the State Electricity Boards for energization of irrigation wells.

The Reserve Bank has decided to appoint major banks as "Lead" banks for various districts in the country. Such banks are expected to assume an important role in the development of banking and credit in the allocated districts. Their role will be to act as consortium leaders. After identifying the areas requiring branch expansion and the areas suffering from credit gaps, it should invoke the

co-operation of other banks in the districts for opening new branches as well as meeting credit needs.

X. Marketing

Marketing of agricultural produce is a complex activity. It embodies the various functions, such as, assembling, grading, standardizing, packing, storing, processing, financing, transport and communications. Market news and information have also an important role to play.

Market Functionaries : The human agency in the marketing process is an important consideration. The functionaries of the various marketing activities at market places adopt their own techniques of operation, procedure of business and trading practices. Techniques of marketing and organization vary in accordance with the economic conditions, nature of the marketable product, the area and location of marketing, marketing agencies and the rate of technical and commercial development.

There are several types of functionaries in the *mandi* such as *arhatiyas* or commission agents, *dalals* or commodity brokers, general agents, and agents for specific commodities and purposes. The agencies in the chain of marketing from the producer to the manufacturer and the consumer depend upon the nature of the crop also.

Types of Markets : Markets for agricultural commodities can be broadly classified into three groups : (i) *hats* and *shandis* ; (ii) wholesale markets or *mandis* ; and (iii) retail markets. *Hats* and *shandis* are markets periodically held, the former usually once or twice a week and the latter either at long intervals or on special occasions. Agricultural produce or livestock or both are sold in these primary markets, which number about 22,000 and are located mostly in the interior of the country. The areas served by a *hat* vary considerably. In some cases they are only villages while in others they may extend over a radius of 100 to 115 kilometres. They can also be termed as primary markets.

Mandis or wholesale markets form the most important part of agricultural market structure. There are about 1,700 wholesale markets in the country. Most of them command quite a large area and the produce is brought for sale from the primary markets, by the producers direct or by the middlemen such as village merchants, itinerant dealers, and agents of traders in the *mandis*.

Most *mandis*, particularly those in the producing areas, function as both primary and secondary markets. Primary markets are those where bulk of the produce is brought by the producer himself for sale

The primary markets serve as feeding centres for the secondary markets which are usually wholesale markets and serve as second point of assembling, the first being the primary markets. Markets from where the produce is exported outside are known as terminal markets. A terminal market could also be a primary and secondary market.

The bulk of marketed surplus of the farmers is usully sold in the village. The All-India Rural Credit Survey shows that about 65 per cent of the total sales of crops are effected in the village. There are many reasons for the bulk of the produce being sold by the farmer in the village. The farming units are small; many farmers do not possess means of transport. Road development is not quite adequate, farmers are illiterate and the market information service is yet to have ramifications in the villages. The system of agricultural credit is also defective. The farmer has to depend on the village merchant for loans and there is quite often an undertaking that the farmer will sell his produce to the merchant.

In many areas, keen competition among the buyers makes the village price quite fair and attractive as compared to the prices in *mandis*. It is only in backward areas that the margin of difference is large and the prices ofiered tothe farmer are unfavourable as compared with the prices in the *mandi*. Conditions of marketing in the *mandis* are not always very attractive to the small producer. He gets less attention and there are a number of unauthorized deductions. He fails to understand the complicated sale system in the *mandi*. The development of regulated markets and improvements in the marketing facilities may gradually bring a change in the current situation.

Regulated Markets : Most markets in India were unregulated till recently. Once the farmer goes with his produce to the market for any dispute arising between him and the middleman or the purchaser, he has to depend on the decision of his broker and *arhatia*. The facilities for parking carts, drinking water, sanitation etc. are not good. There is considerable room for improvement in market places and sales procedures, system of payment of price, etc.

When the sales are not by the open auction system, the farmer's interest is often ignored. Even in open auctions, there may be a tacit understanding among the bidders not to bid high. For ending these malpractices, marketing committees with strong representation of farmer's interest are necessary. A number of unfair practices like short weights, unwarranted deductions and higher rates of commission and other market charges prevalent in most of the *mandis* take away a substantial share of the price paid by the purchasers and place the farmers at a disadvantage *vis-a-vis* the more organized section of the trading class. The purpose of law and regulation is to

improve competition, to strengthen bargaining power of the producer-seller and this ensures a fair deal to the farmer. During British times, regulated markets came into existence to help exports of industrial raw materials to Britain. But today the regulated markets have to pay a positive role in the orderly development of marketing.

Co-operative Marketing : Co-operative Marketing Societies help the farmer in getting maximum returns for the farm products. Co-operative marketing will strengthen the fibre of village life by making cultivators conscious that what used to be their weakness so far could be converted into strength by pooling their produce and selling it through their own organizations.

State Trading : The latest development is state trading in respect of foodgrains and certain strategic resources. The State can undertake trading activity if it is necessary for building up stocks and for distribution with a certain degree of social control. It may be recommended for a rational system of price stabilization to allow free trade on a competitive basis within certain broad limits and to regulate prices by suitable countervailing measures, overall as well as selective, by public authority.

Internal purchases of foodgrains on behalf of the Government are undertaken by the Food Corporation of India established in 1965.

Place and Time of Sale : Village sales account for the major part of marketed agricultural produce. The Rural Credit Survey found that in 1951 nearly 65 per cent of the total sales were made in the village. This is, however, only an overall position. Marketing studies carried out by the Marketing and Inspection Organization of the Government of India indicate considerable local variations. In Punjab, for instance, 35 per cent of paddy was estimated to have been brought to the assembling markets by cultivators as against only 3 per cent in some parts of Kerala. Direct sale by cultivators in the assembling markets depends on various factors. In some districts of Punjab with well developed means of transport and communication, about four-fifths of the wheat crop is sold by the grower directly in the assembling markets. On the other hand, in other districts of the same State which lack these facilities, the corresponding proportion is insignificant. A similar variation is prevalent among districts in Uttar Pradesh. In western Uttar Pradesh, about one-third of the local surplus is estimated to be taken to the assembling markets by the growers. This proportion is very small in the eastern districts.

In relation to time of sale, the important factor is the preponderance of sale soon after the harvest. Thus, in 1967-68, of the total market arrivals of rice and gram, more than 70 per cent arrived during the two quarters immediately succeeding the harvest. The corresponding figure for wheat was 68 per cent and *jowar* 55 per cent. The rush

of market arrivals in the post-harvest period has increased appreciably, particularly in the case of wheat as a result of the recent Green Revolution. Since these percentages refer to the arrivals in the wholesale markets, they would not fully reflect the extent of post-harvest sales in village markets owing to the carry over of stocks for some period by functionaries between the village and wholesale markets.

Defects in Marketing : The defects in marketing of agricultural produce can be classified into two broad groups. The first group consists of various types of malpractices prevailing in the markets, such as, (1) manipulation of weights and scales against the seller, (2) the practice of taking large quantities as sample, (3) arbitrary deductions from sale proceeds by the market functionaries under various pretexts, (4) sale under cover keeping the seller ignorant of price, and (5) discriminatory marketing charges. The extent of these malpractices varies from market to market and it is difficult to measure it with any precision. Some typical instances of these malpractices may be noted. The *arhatiyas*' commission is usually higher for small cultivators as compared to village merchants who, because of their larger turn-over, get better terms from the *arhatiyas*. This is also true of trade allowance or *karda*. Even in well organized markets like Hapur and Ghaziabad, the cultivators ordinarily pay twice as much as the charges paid by village merchants.

The second group of defects in marketing of agricultural produce arises out of inadequate facilities for transport and storage. This results in simultaneous existence of pockets of scarcities and surpluses leading to wide inter-regional variations in prices.

Regulated Markets : Legislation for regulation of markets was initiated in India in the thirties following the recommendations of the Royal Commission on Agriculture. In that decade, Madras, Central Provinces, Bombay, Mysore and the Punjab enacted the necessary legislation. This process, which was interrupted in the forties because of World War II, gathered momentum during the last decade and legislation for regulation of marketing was enacted in Madhya Bharat, Coorg and Orissa during the First Five Year Plan, and in Bihar and Rajasthan during the Second Plan.

Regulation of markets and market practices is now done under the Agricultural Produce Markets Act. The Directorate of Marketing and Inspection provides the necessary guidance and assistance to States in framing market legislation and its enforcement. Excepting the States of Assam, Kerala, Nagaland, Meghalaya and Jammu and Kashmir, all States have passed laws for market regulation. The total number of regulated markets and market yards at the end of March 1970, was 2,070; this increased to 2,131 by December 1970. During 1971, a study of regulated markets was undertaken to assess the faci-

lities that are needed to cope with the increased arrivals following increased higher production.

Legislation to regulate markets generally covers all the agricultural, horticultural, livestock and livestock products. The Act authorizes the State Government to establish a market committee for every notified area consisting of representatives of cultivators, traders, local bodies, co-operative marketing societies and the Government. The principal aim of the legislation is to ensure fair marketing conditions for cultivators through elimination of malpractices and unauthorized deductions. It stipulates the sale of produce through open auction in the presence of representative of the market committee. It provides for licensing of market functionaries, such as, commission agents with provision for revocation of licence if the market functionary is found to follow unfair practices. It also prescribes that no allowances other than those stipulated in the legislation will be levied. In addition to ensuring fair practices, the market committee heard disputes between buyers and sellers and gives decisions which would be binding on the parties.

Regulation of markets has been helpful in securing reduction in village sales, systematization of methods of sale and weighment and reduction in market charges. There has been a progressive increase in the produce brought to the regulated markets by the growers.

Apart from covering more markets by regulation, it will be necessary to expand facilities by way of market yards and other ancillaries in various markets. A recent study has shown that, in certain areas such as Punjab, during the post-harvest season of 1968-69, market arrivals increased by 150 per cent over the average of corresponding period in the three previous years. The capacity for market yards proved to be inadequate for these large arrivals and considerable market transactions began to be conducted outside the market yards, thus leading to malpractices. In this context, efforts are necessary for strengthening and restructuring the market committees with regard to their resources and functions. A beginning has already been made by some market committees to obtain bank finance for improvement of market facilities. It will be necessary to enable a large number of market committees to resort to such institutional finance and thereby help in the development of market intelligence. Some of the well developed market committees are also expected to make their contribution to the development of feeder roads for which a beginning has been made in a few rural areas. Finally, it will be necessary to evolve a suitable state level machinery for supervising and co-ordinating the work of regulated market committees. Several States are contemplating action to constitute State Agricultural

Marketing Boards on the lines of those functioning in Punjab and Haryana.

Co-operative Marketing : There has been considerable extension and diversification of the activities of the co-operative marketing and processing societies recently. The marketing operations of co-operatives have reached a level of nearly Rs. 600 crores. Co-operatives now account for one-third of the total production of sugar in the country. The value of fertilizers distributed by co-operatives during 1969-70 was of the order of Rs. 232 crores. The total storage capacity available in the co-operative sector is nearly 2.7 million tonnes. To help the farmers, co-operatives in recent years have been branching out into new lines of activities like production of granular fertilizer products, processing and distribution of seeds, manufacture and distribution of improved agricultural implements and setting up of agro-service centres.

The infra-structural activities for processing, storage and marketing of agricultural produce and for supply of agricultural inputs are being further extended to sustain the tempo of agricultural production. Emphasis is continuously being laid on streamlining the structure of co-operative marketing societies and strengthening their administrative machinery so that effective arrangements could be made for collecting the produce from the farmers directly, and selling it at terminal markets. The National and State Marketing Federations have also been directing their efforts towards developing an integrated marketing system in the co-operative sector. Working societies have been evolved with the Food Corporation of India to secure larger participation of co-operatives in the procurement operations of the Corporation for the benefit of the farmers.

The value of agricultural produce marketed by co-operatives was substantial in the state of Maharashtra, Uttar Pradesh, Gujarat and Punjab and these States accounted for about 74 per cent of the total value of agricultural produce marketed by co-operatives in the country during 1969-70.

XI. Labour

Historically, the emergence of a sizeable group deriving its livelihood mainly from casual labour on land is a relatively recent phenomenon in this country. There was perhaps no distinct class of agricultural labourers before the 19th century because the traditional rural community was organized into a balanced agricultural and handicrafts economy. Land was not so scarce and the system of exchange labour took care of additional requirement of labour on particular occasions.

With the rapid increase in population, the pressure on available cultivable land became acute, leading to sub-division and fragmentation of holdings and further to the emergence of people without land depending mainly on labour for livelihood. They had either a very small holding or had no land at all. Simultaneously, the village crafts and cottage industries received a serious set-back, as a result of imports of cheap manufactured articles. A large number of persons lost their traditional occupation and sought refuge in agriculture. They mainly swelled the rank of agricultural labourers. Agricultural labour today occupies the lowest rung of the rural ladder. Social stratification in a village is linked with land and caste which govern status, economic power and political influence as much as the level of living. Owner cultivators with large holdings are at the apex. Agricultural labour is provided mostly by economically and socially backward sections, poor sections from the tribes also swell their ranks.

Labour Population : The decennial Population Census gives information regarding the number of agricultural labourers since 1901, but due to changes in concepts and definitions of census classification, figures for the successive decades are not comparable. According to the 1971 Census, the total number of agricultural workers (cultivators and agricultural labourers) engaged in crop production comes to 126 million, of whom 78.7 million are cultivators and 47.3 million agricultural labourers (Table XX). The corresponding figure for 1961 Census works out to 99.5 million cultivators and 31.5 million agricultural labourers. This implies a decline of over 20 per cent for cultivators and an increase of as much as 50 per cent in the number of agricultural labourers in 1971 over 1961. This indicates that hunger for land among the landless in India is growing. An analysis of the available data shows that in States, such as Andhra Pradesh, Bihar, Tamil Nadu, Uttar Pradesh and West Bengal, the number of landless labourers continues to be high and has grown during the past decade.

Bihar, where 38 per cent of the total working force constitutes landless cultivators, against 23 per cent in 1961, tops all other States in this respect. In Andhra Pradesh, the increase has been from 28.6 to 37.4 per cent, in Tamil Nadu 18.4 to 29.1 per cent, in West Bengal 15.3 to 25.7 per cent and in Uttar Pradesh 11.3 to 19.35 per cent.

On the other hand, Jammu and Kashmir, Nagaland and Himachal Pradesh have a very low population of landless agricultural workers. It is 1.44 per cent of the total working force in Nagaland, 3.12 per cent in Jammu and Kashmir and 4.25 per cent in Himachal Pradesh.

TABLE XX

Total Workers And Agricultural Workers—1971

(Millions)

State/Union Territory	Population	% of rural population to total population	Total workers	% of workers to total population	As cultivators	As agricultural labourers	Total (6+7)	8 as % of (4)
1	2	3	4	5	6	7	8	9
Andhra Pradesh	43.4	80.7	18.1	41.7	5.8	6.8	12.6	69.6
Assam	15 0	91.6	4.3	28.6	2.4	0.4	2.8	65.1
Bihar	56.3	90.0	18.0	32.0	7.6	6.9	14.5	80.6
Gujarat	26.7	71.9	8.4	31.6	3.6	1.9	5.5	65.5
Haryana	10.0	82.2	2.7	26.5	1.3	0.4	1.7	37.0
Himachal Pradesh	3.4	92.9	1.3	36.8	0.9	0 05	1.0	76.9
Jammu and Kashmir	4.6	81.7	1.4	30.0	0.9	0.04	0.9	64.3
Kerala	21.3	83.7	6.2	28.9	1.1	1 9	3.0	51.6
Madhya Pradesh	41.7	83.7	15.6	37.3	8.1	4.1	12.2	78.2
Maharashtra	50 3	68.8	18.7	37.2	6.6	5.4	12.0	64.2
Karnataka	29.3	75.7	10.3	35.2	4.1	2.6	6.7	65.0
Nagaland	0.5	90.1	0 3	52.1	0.2	0.004	0.2	66.7
Orissa	21 9	91.7	6.9	31.6	3.4	1.9	5.3	76.8
Punjab	13.5	76.2	3.9	28.8	1.6	0.8	2.4	61.5
Rajasthan	25.7	82.4	8.3	32.2	5.3	0.7	6.0	72.3
Tamil Nadu	41.1	69.7	15.1	36.7	4.7	4.4	9.1	60.3
Uttar Pradesh	88.4	86.0	28.5	32.2	15.9	5.5	21.4	75.1
West Bengal	44.4	75.4	12.6	28.4	4.0	3.2	7.2	57.1
Union Territories	9.9	52.4	3.3	33.6	1.1	0.3	1.4	42.4
All-India	547.4	80.1	183.4	33.5	78.7	47.3	126.0	68.7

The proportion of land-owner cultivators in these States is among the highest in the country—78.19 per cent of the working force in Nagaland, 71.6 per cent in Himachal Pradesh and 64 per cent in Jammu and Kashmir. This also testifies to their industrial backwardness.

The shift in the proportion of female workers between cultivators and agricultural labourers is particularly striking. Only 28 per cent of such workers have retained their main activity as cultivation and 46 per cent as agricultural labour. A similar trend is observed in almost all the States, except Himachal Pradesh, Nagaland, Manipur and Meghalaya, where the disparity in the female participation rate in cultivation is not so apparent. Even in these areas, excepting Nagaland, the proportion of workers in agricultural labour has shown a definite increase among the females.

The proportion of non-agricultural workers has increased from 30.5 per cent in 1961 to 31.4 per cent in 1971, the increase being accounted for mainly by female workers. The male working population, however, dropped from 35 to 33 per cent due to a larger proportion of workers being claimed by agricultural labourers. In absolute numbers, the non-agricultural male workers have gone up from 35.3 to 48.5 million, an increase of about 7 per cent.

Problem of Identification : Before any other measure relating to the introduction and administration of welfare measures exclusively for agricultural labour could be thought of. the foremost problem was how to identify the agricultural and rural labour amongst the composite setting of rural population. It is common knowledge that the rural population comprises the heterogenous mass of persons who are agricultural and rural labour as well as holders of petty plots or cultivators of small plots on behalf of the rural owners or who augment their income by other avocations like carpentry, smithy, etc. in addition to working as agricultural labour. So it is very difficult to locate agricultural labour as such, if one has to go strictly by the narrow considerations of occupation only, because occupational structure in a village is over-lapping in character. No straightforward formula could thus be evolved which could provide a fool-proof solution to the problem of identification. The casual nature of employment, which keeps them shifting from one farm to another, further adds to the difficulty of identification.

By and large, various authorities concerned have favoured the criterion of income. The problem of definition also engaged the attention of two Agricultural Labour Enquiry Committees. The first Agricultural Labour Enquiry Committee (1950-51) defined agricultural labour as "all those who were engaged as hired labourers in agricultural operations for 50 per cent or more of the total number

of days worked by them during the previous year". The basis of this definition was thus the quantum of hired employment during the period of any year. The second Agricultural Labour Enquiry Committee (1956-57) adopted income as a criterion for demarcating agricultural labour families. A person was deemed to be an agricultural labour if his or her major source of income during the previous year was an agricultural wage.

In these enquiries, a person was considered as an agricultural labourer if he followed anyone or more of the following agricultural operations in the capacity of a labour on hire or on exchange, whether paid in cash, in kind or partly in cash or partly in kind :

(a) farming including cultivation and the tillage of the soils ;

(b) dairy farming ;

(c) production, cultivation, growing and harvesting of any horticultural commodity ;

(d) raising of livestock, bees or poultry ; and

(e) any practice performed on a farm as incidental to or in conjunction with the farm operations (including any forestry or timbering operations) and the preparation for market any delivery to storage or to market or to carriage for tranportation to market of farm products.

The census enumerators defined agricultural labour as a person who works for wages in cash, kind or share (such as share of produce) on another person's land (on which he did not have any right, lease or contract) only as a labour without exercising any supervision or direction in cultivation.

Amongst the parties many have favoured that, in order to have as clearly defined and administratively convenient a programme of welfare amenities for agricultural labour as possible, it is necessary to identify such labour and to definit. As for the definition, a majority of the parties have favoured criterion of income adopted by the Second Agricultural Labour Enquiry Committee for more than one reason. Having examined the question thoroughly, the Committee on Labour Welfare (1969) recommended that agricultural labour be defined as one whose principal means of livelihood is wage income arising out of farm labour and other allied activities. This definition according to them is more rational and scientific because it also includes small and marginal land holders who are no better than agricultural labour.

Character and Problems : Agricultural labour is admittedly not homogeneous in character ; it reveals regional variations dependent on demographic, ecological, technological and other reasons. It is not a distinct type, but is mixed with such occupational categories as share-

croppers, cultivators, construction workers and other unskilled rural labour. Socially, it cuts across peasant groups in a village, though two dominant social groups, *viz.*, scheduled castes and scheduled tribes, have always formed a majority. A point of difference between agricultural workers belonging to scheduled castes and scheduled tribes deserves to be noted. Scheduled castes have been more exposed to the forces of economic and social change through history. Scheduled tribes have been able to preserve in several areas their cohesive and relatively stable socio-agrarian institutions; a large number of them have settled down as agricultural communities. But in the areas which have recently opened up or been exposed for some time, the socio-economic institutions of both these communities are undergoing changes, some for the better, others not so healthy. Thus the issues connected with agricultural labour acquire an important social dimension.

There cannot be a uni-linear approach for improving conditions of agricultural labour. Remedies lie in bringing about fundamental changes in the agrarian structure and social relationship. Economic growth, and more especially the location of industry in smaller centres and in rural areas, is a recognized remedy, though it is essentially a long-term one. In the meanwhile, sheer population pressure and the numbers involved render any meaningful action difficult.

The problem of agricultural labour, perhaps in the context of agricultural wages or seasonal or disguised unemployment among agricultural labour, was first mentioned by the Royal Commission on Agriculture in 1928. The Commission observed that "the labour problem is, therefore, from the agricultural point of view a simple one to lessen the pressure on land. The essential condition for relieving pressure on land is, therefore, in our opinion, mobility". Despite these observations and the efforts made in industrialization, the pressure of labour on land continued to increase.

Though it would not be correct to say that no attempts were made before independence to improve the living conditions of rural India, it was only after independence that concerted efforts were initiated with the launching of a massive Community Development and Rural Works Programme. The Community Projects Programme, by its very nature had to be a composite one, and it could not isolate agricultural and rural labour from the rest of the population in rural India. Yet the plight of the agricultural labour in the realm of welfare amenities could not be ignored for a long time. It was necessary that, at least, preliminary attempts, to gauge and survey the welfare needs of rural and agricultural labour and their families

in matters like proper housing, hygienic surroundings, medical facilities, recreational amenities and the like, were made.

The 1946 Programme for the amelioration of labour conditions included as its components, fixation of a minimum wage for agricultural workers and a plea for an enquiry into their level of living. The results of the latter were to be used for formulation of measures to protect and improve agricultural wages. The Minimum Wages Act, 1948 was passed ; agriculture was included as one of the employments in the schedule appended to the Act.

Labour Enquiry and the Plans : The first ever attempt to assess the magnitude and problem of agricultural labour was, however, made with the constitution of the Agricultural Labour Enquiry in 1951. This was followed by another Enquiry in 1956-57. The first Enquiry was conducted to provide comprehensive data on essential aspects relating to conditions of agricultural labour, and the second for providing broadly a comparative picture of the conditions of agricultural labour in the country as between 1950-51 and 1956-57.

The findings of the Enquiry gave broad statistical support to the then prevailing notions about the conditions of agricultural labour that it was eking out its existence at the lowest level of incomes, and the primary cause of it was inadequate work and also low payment for whatever work was available. The average per capita income was Rs. 250 in 1950-51; for agricultural labour families, it was Rs. 104. The Enquiry pointed out that labour was employed only to the extent of about half its potentiality to work. Better enforcement of the Minimum Wages Act, 1948, could have been a partial remedy. When various forums during the First Plan discussed the problems of agricultural labour, they pointed out the inadequacy of the action taken in this regard. Economic development in rural areas through promotion of village industries was but only incidentally referred to.

The Second Plan (1956—61) viewed the problems of agricultural labour in the wider perspective of rural development programmes. It recognized the limitations of implementing the minimum wages legislation, but reiterated older remedies. Development and diversification of village industries, redistribution of land, provision of housing facilities, encouragement to labour co-operatives and promotion of scientific agriculture were some of its suggestions. A fresh Agricultural Labour Enquiry (the second ALE) was proposed; its results were expected to provide a firmer base for policies in the Third Plan (1961—66).

When the results of the second ALE (1956-57) were published, it became obvious that because of the changes in the concepts and definitions used, its conclusions could not be compared with those of the first. A detailed technical examination of the two reports by an

Expert Committee set up by the Planning Commission, reached the conclusions *inter alia* (i) the second ALE reflected the conditions of agricultural labour in 1956-57 better than the first ALE did for that category in 1950-51; (ii) no improvement or deterioration in the general conditions of agricultural labour over the period 1950—57 could be established but, (iii) in the light of the increase in per capita income in the country and absence of any marked improvement in the conditions of agricultural labour, an objective of planning in the context of the socialist pattern of society *viz.*, improvement in the levels of living of the lowest category of our working class commensurate with the total development of the economy, was far from being achieved.

The first step towards identification of the problems of agricultural labour including welfare problems was taken in August 1965, when an All-India Seminar on Agricultural Labour was organized by the Central Government. The Seminar adopted, *inter alia*, a number of recommendations relating to welfare of agricultural labour. These were: (i) the importance of allotting housing sites for agricultural labour, if, by mixing this up with rural housing, delays are likely, the farmer should be treated separately as a matter of higher priority; (ii) grant of free-house-sites to the agricultural labour, provision of interest free loans, if possible, or in the alternative concessional finance and cheap credit facilities for building houses should form a separate scheme altogether; (iii) welfare measures relating to drinking water, housing, medical facilities, rest-sheds, etc., as provided for under the Plantations Labour Act and other labour laws should be made applicable to the employers of at least big farms, employing 50 and more workers; (iv) enhancement of the existing provisions for granting stipends and scholarships to the children belonging to agricultural labour families; and (v) other welfare measures for agricultural labour to be considered after undertaking a pilot study to assess the benefits of various welfare measures already being enjoyed by the agricultural labour as part of the overall welfare programmes undertaken in the country for rural population.

Co-ordinating Committee on Agricultural Labour: The next step was to consolidate and co-ordinate the recommendations made by the Agricultural Labour Seminar on a national level. To achieve this, the Union Ministry of Labour, Employment and Rehabilitation established a Co-ordinating Committee on Agricultural Labour. It took a number of important decisions which, *inter alia*, included recommendations for labour welfare measures. It was considered that welfare centres for agricultural labour could be set up in the areas where colonization schemes for resettlement of agricultural labour had been undertaken. A Special Committee was formed to pursue this sugges-

tion further. The Committee also considered that the possibilities of improving the existing arrangements for grant of scholarships to children of agricultural workers should be explored in the light of the recommendations of the All-India Seminar on Agricultural Labour. It decided that a list of such projects where 500 or more workers had been employed as agricultural labour should be compiled and Labour Officers appointed to look after the welfare needs of those workers. The Committee also decided that big farms be identified to find out the possibility of making applicable certain welfare measures relating to drinking water, housing, medical facilities, rest-sheds, as are provided for under the Plantations Labour Act and other labour laws to such farms as employ 50 or more workers. Among the other decisions, that the Committee took, was that a detailed paper on a Rural Housing Scheme, including allotment of house sites and providing interest free loans or concessional finance for construction of houses to agricultural labour should be prepared. It also decided that a pilot study, to assess the benefits of various welfare measures applicable to agricultural workers, should be made. The Committee further suggested that the Director General, Factory Advice Service and Labour Institutes should be approached to study one or two aspects having a bearing on the safety, hygiene etc., of agricultural labour *vis-a-vis* use of pesticides, tractors, etc., on the health of workers.

Improvement in Living Conditions : Besides fixation of minimum wages for agriculture labour, the Third Plan laid emphasis more on provisions of employment than fixation and implementation of minimum wages. It was in this context that a Rural Works Programme was initiated. The programme, which was intended to harness large rural manpower resources for economic development, was to serve as under employment relief. Beginning modestly with the provision of employment for one lakh persons in the first year, the object was to reach a target of 2.5 million persons in the last year of the Plan. Implementation of the programme did not, however, proceed as originally expected and not more than 4 lakh persons could find employment in 1965-66.

The whole programme was then critically examined at a conference in 1965 while laying guidelines for the Fourth Plan. It was recommended that (i) the selection of areas for setting up a programme would be governed by employment considerations, but once the area was chosen, economic considerations should prevail in selection of projects, (ii) the Rural Works Programmes should be an integral part of local area plans in which local institutions should be duly involved and (iii) the administrative and technical organizations involved in the programme should be strengthened. Labour co-opera-

tives, and not professional labour contractors, should be entrusted with the execution of schemes.

In the three years, 1966—69, the programme was maintained more or less at the same level as in the last year of the Third Plan. It is now being proposed to make these programmes a part of the general programme for rural development. The Fourth Plan has thus laid emphasis on labour intensive schemes such as road building, minor irrigation, soil conservation, area development programme, irrigation, flood control and rural electrification. This is expected to enlarge non-farm rural employment and even relieve agricultural under-employment directly by providing employment to agricultural workers.

There are other schemes to assist marginal farmers and agricultural labourers like those of Small Farmers' Development Agencies. Marginal Farmers' and Agricultural Labourers' Scheme, Integrated Dryland Agricultural Development Scheme and Cash Schemes for rural development. Under the Marginal Farmers' Scheme, farmers (with holding upto one hectare) and agricultural labourers (whose wage income from agriculture exceeds 50 per cent) are to be assisted in 41 selected projects during 1970-71. Similarly, Small Farmers' Development Agencies have been created in a number of districts. Increasing support to such activities is likely to help economic development of the small farmers' families of which about 23 lakhs are expected to benefit from this scheme.

About 9,44,000 potentially viable small farmers and 3,01,000 marginal farmers and agricultural labourers have been found eligible for assistance under the Rs. 50 crore crash progamme for rural employment. Of these listed farmers, 2,00,000 small farmers and 27,000 marginal farmers and agricultural labourers have been brought into the co-operative field. Short-term credit worth Rs. 562.39 lakhs was disbursed, besides Rs. 67.08 lakhs on medium-term and Rs. 192.59 lakhs on a long-term basis. The scheme for small and marginal farmers is intended to cover three million families. The Planning Commission has approved 46 projects under the Small Farmers' Development Agency and 42 projects under the Marginal Farmers' Agency.

The Commission is drawing up an integrated land redistribution and rural works programme with a view to removing the disabilities of small farmers and the abject poverty of the landless labour. The scheme, while aiming at redistribution of available cultivable area, will modify the strategy of rural development "to improve the absorptive capacities and productive capabilities of millions of small peasants". It may lay down the following guidelines for a land reform policy to be adopted by the States. No household ownership

holding will be larger than 8.09 hectares, or it may be 6.07 hectares in wet land and 10.11 hectares in dry land.

Non-land owning, non-cultivating households may not receive agricultural land released for redistribution. The land released through fixing a ceiling on holdings is to be distributed among households which have less than 2.02 hectares. If such a land redistribution policy is adopted, the Commission envisages that the difference in per capita land ownership between the smallest and largest household holdings will not be more than five times. The proposed scheme will reduce the number of rural people below the poverty line by about 25 millions. Instead of two-fifth of the rural population now living in abject poverty, this proportion may be reduced to about one-third.

Along with Governmental efforts, another movement being carried on through peaceful and non-violent means by Gandhian workers under the leadership of Acharya Vinoba Bhave aims at distribution of land to the landless. Since its inception in 1951, the movement has developed into an integrated programme and the philosophy of *Sarvodaya* which aims at reconstruction of rural societies and at placing agrarian relations on a more egalitarian basis. This philosophy has important implications for agricultural labour.

Land reforms have two aspects : one relates to the changes in the system of land holding through tenancy reform and abolition of intermediaries, and the other, to the system of land cultivation as affected by ceiling on land holdings, co-operative farming and distribution of land through official agencies or through other movements. Land to the tillers as a cardinal feature of the policy and land reforms have attempted to abolish forced labour which was imposed on small peasants and workers with no land of their own. Like other programmes, agrarian reforms and distribution of land have, however, not been followed up by a policy designed to protect and secure the interest of small peasants and agricultural labour. No tenurial reforms to protect interests of share-croppers have been carried out. The matter is now receiving the urgent attention of the highest authorities.

Among other Plan proposals and programmes that have a bearing on agricultural labour, the following may be specifically stated :

(i) changes in the agrarian structure, including development of co-operative farming and land resettlement programmes ;

(ii) industrial growth, and more specially diffusion of industry into small towns and rural areas ;

(iii) provision of house sites for scheduled castes ;

(iv) effective implementation of minimum wage legislation ;

(v) creation of a special cell within Government for watching closely the progress of development programmes which have a particular bearing on the welfare and development of agricultural workers ; and

(vi) study of special problems which concern them in different parts of the country.

XII. New Strategy And Green Revolution

To the first stage of the new strategy belonged the Intensive Agricultural District Programme (IADP). The Grow More Food Campaign, started as early as 1942, had come in for criticism from all quarters. It was observed that "the movement had failed to arouse widespread enthusiasm. This was so because all aspects of rural life are inter-related and that no lasting results can be achieved if individual aspects of it are dealt with in isolation". It was also observed : "The food problem was attacked from the angle of material investments made in land, namely, wells, seeds, fertilizers, etc. Human beings who lived in the villages and cultivated the fields, were practically ignored".

As early as 1928, the Royal Commission on Agriculture had also pointed out that the demand for a better life could be stimulated only by a deliberate and concerted effort to improve the general conditions of the countryside. It was also made clear by it that the responsibility for initiating the steps in the direction lay with the Government.

Intensive Agricultural District Programme : The Intensive Agricultural District Programme, or the Package Programme, as it has popularly come to be known, found its roots in a Report that a team of experts of the Ford Foundation made in 1959. This team, invited by the Government of India, made a survey of India's agricultural problems and suggested practical ways for filling up the gap between food production and consumption. In suggesting an all-out effort in this direction, it outlined specific measures to be taken. The team's recommendation was that selected areas in the country, having the greatest potentialities for rapid foodgrains production, should be chosen for intensive agricultural development.

To exploit fully the production potential of some favourable areas, the Intensive Agricultural Disirict Programme is being worked in selected districts which have the maximum irrigation facilities and minimum natural hazards. It aims at simultaneous provision of all the essential elements needed for increasing the production including credit to all participating cultivators for rapid expansion within a short time.

The programme sponsored during 1960-61, with financial assistance from the Ford Foundation, had the two-fold objective of (a) increasing food production in order to meet the existing shortage as well as to provide a base for more rapid economic development, and (b) demonstrating the most effective ways of increasing food production through concentration of resources, both human and material, and setting a pattern of extending such intensified agricultural programmes to other favourable areas having irrigation or assured water supply. The object was to promote the adoption of a combination of improved practices by the farmers by making available the needed where-withal of production like credit, seeds, fertilizers, pesticides, implements, etc. Each farmer is assisted to develop a crop production plan for his holding.

The programme is currently in operation in 17 districts in the country. The Ford Foundation is rendering technical support to five IADP districts, *viz.* Ludhiana, Thanjavur, West Godavari, Raipur and Sambalpur known as Innovative Districts, in planning, implementing, evaluating, and reporting on the programmes. The Indo-German Agricultural Project, Mandi, which was initially to have been implemented for five years was extended upto March 31, 1971. The Mandi-type project has also been extended to Kangra district from January 1967. For this project, the Government of the Federal Republic of Germany has supplied agricultural machinery, implements, fertilizers, etc., worth about Rs. 17.36 lakhs. A similar intensive agricultural project was undertaken in Nilgiris district of Tamil Nadu from January 1967. Besides services of a number of experts and technicians, the West German Government have provided agricultural machinery, implements, fertilizers, etc., worth about Rs. 12.14 lakhs for this project.

The success of the programme in the modernization of agriculture in the IADP districts is reflected not only in the generation of considerable demand for inputs like improved seeds and fertilizers and for plant protection measures, but also in the rising trend of productivity despite unfavourable weather conditions and occurrence of pests and diseases in endemic form. Among the important programmes introduced under the new strategy are the high yielding varieties programme, multiple cropping programme, and the Ayacut Programme.

The programme was initiated to demonstrate the most effective way of increasing production by the application of scientific know-how and set a pattern for extending such a programme to similar areas having an assured water supply and where conditions are favourable for intensifying efforts.

In the selected districts, an attempt is being made to provide all the essential elements for increasing production to the extent needed such as fertilizers, pesticides, improved seeds, and improved implements ; composite scientific demonstrations are being laid out on a large scale. Credit is being provided on a scale sufficient to reach all farmers including those previously considered not credit worthy.

Through Bench-Mark Survey and systematic evolution, high standards of performance are being insisted upon in these selected districts. The idea is that the districts, chosen for intensive development, should give to the agricultural and other services in each State special opportunities for developing improved methods for extension and for planning of agricultural production at the block and village level as well as in relation to the individual farmers.

While the performance varied a great deal among the different districts, the programme brought into sharp focus two elements of the strategy, namely, the efficacy of the inter-action of various improved agricultural practices conceived as a package and the advantage accruing from concentrated and co-ordinated efforts in areas with significant agricultural potential. From 1964-65 onwards, a similar approach—but with the extension staff on a reduced scale—was introduced in several other parts of the country through the Intensive Agricultural Area Programme which concentrated on specific crops.

Intensive Agricultural Areas Programme : One of the principal lessons of the mid-term appraisal of the Third Plan was the need to give more emphasis on the development of scientific and progressive agriculture in areas where a high agricultural production potential exists. The Agricultural Production Board accordingly agreed in January 1964 to select about 20-25 per cent of the cultivated areas in the country for intensive agricultural development.

This programme also follows the "Package Approach"—the use in agriculture of inter-related factors—physical, social, and institutional—in strategic combinations which are likely to produce an impact on agricultural production. It is also based on the fact that our earlier planning was defective because of our policy of dispersing our resources on too many schemes over too wide an area. A beginning was made in 1963-64. The programme, however, came into operation in March 1964, when field work was taken up.

The normal extension staff has been strengthened in these areas. Attention is also being given to strengthening and streamlining the administrative machinery, delegation of powers to various concerned officers for supporting this programme and provision of credit requirements of agriculturists. Construction of a large network of

rural godowns and supply depots, as an indispensable adjunct of the supply framework, was taken up on a top priority basis.

New Strategy for Agricultural Development : While the IADP and Intensive Development Area Programmes are being continued, the unprecedented drought of the two years 1965-67—and the biological revolution brought about by the introduction of new strains of various foodgrains, helped the country to embark upon a new strategy of agricultural development. The most important of the programmes under the new strategy are the High Yielding Varieties Programme, Multiple Cropping Programme, New Concepts of Irrigation, Ayacut Development and Water Management.

High Yielding Varieties Programme : During the two drought years of 1966 and 1967, when food production fell by 19 per cent, a mood of pessimism spread throughout the country. Few were then aware of the silent revolution which was taking place in the fields of the agricultural universities and research institutes in India.

A new technology of farming was under development using the dwarf and fertilizer-responsive strains of wheat and rice bred in Mexico, Taiwan and Philippines and the high yielding hybrids of maize, Sorghum and pearl millet bred in India.

After two years of rigorous testing, the Mexican wheat varieties, *Lerma* Rojo and *Sonora*-64, were found to be suitable for cultivation in the major wheat growing areas of the country. Similarly, Taichung Native-1, a dwarf rice variety from Taiwan and latter the Philippine variety IR-8 were found to perform very well in several parts of the country. In the case of maize, four high yielding hybrids, *Ganga*-1, *Ganga*-101, *Ranjit* and *Deccan* were released as early as 1961, as a result of the work carried out under the Co-ordinated All-India Maize Improvement Project of the Indian Council of Agricultural Research in collaboration with the Rockefeller Foundation. In Sorghum, the first hybrid CSH-1 was released in 1964, and in Pearl Millet, HB-1, a very high yielding hybrid developed at the Punjab Agricultural University, Ludhiana, was released in 1965.

These high yielding strains provided the raw material for the initiation of a synergistic package of practices under the high yielding varieties programme started by the Government in 1966. A nation-wide Demonstration Programme was initiated in 1965 to introduce farmers to the new vistas in crop yields that were open to them. Because these new strains were capable of giving almost double the yield of earlier varieties when managed properly, they caught quickly the imagination of the farming community and a small developmental programme soon became a mass movement and acquired the popular epithet "Green Revolution".

The exotic varieties introduced under the high yielding varieties programme in its initial stages had several drawbacks. Hence, the first priority in research and developmental efforts had to be placed on the rectification of these defects. For example, the Mexican wheat, *Lerma Rojo* and *Sonora-64* had red grains and hence were not quite acceptable to the farmer and to the consumer. By selection from material sent from Mexico, a whole series of strains possessing fertilizer responsiveness, disease resistance and good grain quality were released in 1967 under the names of *Kalyan Sona*, *Sonalika*, *Chotti Lerma* and *Safed Lerma*.

Also, a variety named *Sharbati Sonora* developed by mutation breeding from *Sonora-64* was released in the same year. Proposals for the release of new high yielding varieties of wheat for commercial cultivation were recently considered at a workshop of all-India wheat research workers. A dwarf variety called *Durum* with good grain and yield potential of five tonnes per hectare has been developed. New high yielding varieties for dry farming have also been developed and some of them have been recommended for release by the workshop.

Similarly in rice, Taichung Native-1 and IR-8 had several drawbacks both with regard to pest and disease susceptibility and grain quality. By crossing the dwarf varieties with Indian rice strains possessing a good quality and pest resistance, a series of new varieties were released by the All-India Co-ordinated Rice Improvement Project under the names *Jaya*, *Padma*, *Jamuna*, *Sabarmati*, *Kanchi*, *Cauvery*, *Bala*, *Ratna*, *Krishna* and *Vijaya*, Further, a dwarf mutant in the popular Orissa rice variety T-141, was released under the name *Jagannath*. These varieties have been recommended for specific areas taking into consideration the duration of the crop that is desirable, the disease problems and the grain qualities liked by the farmers.

Rice production is dominated by the monsoon. On account of the dry climate in which wheat is cultivated there are no pest hazards. Rice, on the other hand, is attacked by many serious pests. Vast areas under rice remain inundated while other areas remain dry and are exposed to moisture stress. There are purely rainfed uplands where rice is grown with a minimum rainfall of 850-1,000 mm. On the other hand, there are areas receiving more than 4,000 mm. of rainfall. Not only does the total rainfall vary from season to season, but its distribution throughout the crop season also fluctuates unpredictably and it is the latter phenomenon which determines the yield variations.

Rice varieties show response to correct time of planting in each region. They complete their growth phase and come to flower at a

particular time of a year, if they are photo-sensitive, or may flower at the end of their growth period, if they are of low sensitivity. Both sets of varieties require adequate quantities of water when they are in flower. Investigations have shown that there is a critical phase in crop growth during which there is no adaptability to moisture stress. Since the major irrigation systems are also dependent upon adequate and timely rainfall in the catchment areas, monsoon will continue to dominate all rice production programmes in India. The future expansion in the area under high yielding varieties depends upon how rice scientists face the problem posed by the monsoon.

Bala and *Padma* evolved at CRRI, maturing in 85 and 105 days respectively under direct seeding, are good upland types. Evolution of upland types has been intensified at the Institute by adopting the latest techniques of breeding and selection procedures, and through an understanding of the physiology of the rice plant under moisture stress.

The next big task of rice scientists is the evolution of varieties which can tolerate about one or two feet of water during the growth stages, survive occasional flooding, and grow efficiently under water-logged conditions. This problem of evolution of suitable high yielding varieties for the *kharif* season involves an understanding of the basic physiology of the plant selection of suitable parents and development of appropriate breeding techniques. Physiologists and breeders at IARI are collaborating in this attempt. Within a few years, it is hoped that suitable varieties will be made available which may permit a dramatic extension of high yielding varieties in the *kharif* season.

High yielding varieties of paddy taken up for cultivation including Taichung Native-1, Taichung-65, Tainan-3, ADT-27, and IR-8 have given quite impressive yields in several areas. It has, however, been found that there have been shortfalls (20 to 30 per cent) in the achievement of targets of the coverage proposed for these varieties during the three seasons (*kharif* 1966 to *kharif* 1968). Amongst the factors responsible for shortfalls, apart from unfavourable seasonal conditions, susceptibility to pest attacks, inadequate plant protection measures, incomplete adoption of package of practices, consumer resistance etc., are quite important.

In Sorghum, the early hybrids, CSH-I and CSH-II had chalky grains and consequently, poor cooking and storage properties. This was due to the use of one parent, a male sterile source from the United States, which had a chalky endosperm. This defect was, however, soon remedied by transferring the male sterile character to Indian varieties and the first hybrid combining high

yielding ability and good grain quality was released in 1970 under the name CSH-III.

In addition, a high yielding variety of Sorghum, *Swarna* has also been released. In millet, three more hybrids HB-II, HB-III and HB-IV, have been released since the time HB-I was made available to farmers in 1965. A major problem in hybrid pearl millet is its susceptibility to diseases like ergot, downy mildew and grain smut. Fortunately, sources of resistance have been found and one hybrid HB.-V, which shows relatively more resistance to ergot was to be released during 1971. In maize, a wide array of hybrids and composites are now available and recently three composites possessing a high lysine content have also been recommended for release.

Thus maize strains suited for child feeding, starch manufacture, unleavened bread making and for processing purposes are now available. Many more strains in all these crops which are being tailored to specific uses are currently in the breeders' assembly line.

Multiple Cropping : Since high yielding varieties are of short duration maturity as compared to traditional varieties, they increase the scope for multiple cropping. Development of irrigation, increased fertilizer use, adoption of water management practices and selection of proper crop rotations can help in raising additional crops both in mono cropped and double cropped areas. Where there is water, four or even five crops can now be grown in a year in multiple, mixed and relay cropping systems, getting for the farmer the benefit of nearly 450 days of crop growth in a year of 365 days. Even the limited work that has been done suggests that improved methods of water conservation and use and enrichment of soil fertility coupled with crop varieties capable of avoiding the rigours of drought or floods through changes in their length of life and co-ordinated pest control schedules, can open up new hopes for peasants working in environmentally handicapped areas. The Green Revolution in cereals has paved the way for developing harmonious systems of agriculture and animal husbandry. Available information from the States indicates that 1.89 million hectares were added to the gross cultivated area in 1969-70 and another 1.51 million hectares might be added during 1970-71 as a result of efforts to increase multiple cropping. To accelerate the tempo of progress of multiple cropping, the Government of India have sanctioned a Centrally sponsored scheme for the organization of Multiple Cropping Projects. Fifty-one pilot projects are proposed to be organized by the end of the Fourth Plan at an estimated cost of Rs. 3 crores. Under these projects, special attention will be given to adaptive research trials, water use and management works programmes, scientific demonstrations and training and audio-visual education. Attention will also

be given to arrangements for provision of credit, input supplies, marketing and other infra-structural aspects. A multi-agency approach involving active participation by all organizations and agencies concerned with agricultural development, such as State Governments, agricultural universities and research institutes, co-operatives, commercial banks and input suppliers, would be adopted under these projects.

Development of Irrigation for Intensive Cultivation : In the development of canal irrigation in the past, one of the main considerations was protection against drought. This meant large coverage with a thin spread of water availability. As a result, many of the areas in the command of canals do not get adequate irrigation water supplies for growing two crops. It was felt that through groundwater exploitation, specially developing tube-well irrigation in the command of irrigation projects, it should be possible to produce two or more crops in such areas. It has also been suggested that the tempo of exploitation of groundwater facilities should be accelerated.

Briefly, the new concept of irrigation implies providing adequate water allowance on new irrigation projects in accordance with the optimum requirements of crops, planning and designing of new irrigation projects for higher irrigation intensities, reducing the command area of State tube-wells and encouraging conjunctive use of surface and groundwater resources. Emphasis was also considered necessary on the development of groundwater on compact area basis providing for construction of tube-wells, installation of pump-sets, land development measures and other complementary inputs in a package form. The programme of groundwater investigations needed to be intensified for the development of groundwater irrigation on a rational basis.

Upto the end of the Third Plan, rural electrification programmes were drawn up with emphasis on the number of villages electrified. Since 1965, when it was decided to give higher priorty to food production, rural electrification has been oriented to agricultural needs primarily and as such irrigation pump-sets and tube-wells are being energized on priority basis. In order to attain this objective, crash programmes were implemented with Central assistance. Against the Third Plan provision of Rs. 105 crores, actual expenditure on such programmes was more than Rs. 153 crores.

During the Fourth Plan period, additional 12.54 lakh tube-wells and pump-sets are likely to be energized, bringing the total figure to well over 23.37 lakhs. On the eve of the First Plan, only around 18,000 tube-wells and pump-sets were electrically operated and the

figures at the end of the Third Plan were in the neighbourhood of 5.13 lakhs.

Ayacut Development refers to water-utilization and management in areas recently brought under irrigation and can also cover areas newly reclaimed by flood control, drainage, and soil conservation measures. It implies planned development of agricultural production in those areas as a composite operation involving adoption of improved agricultural practices, land shaping, construction of channels, supply of inputs, and introduction of new cropping patterns. A water-utilization cell has been formed in the Agriculture Ministry. Special programmes are being undertaken in the Kosi Project, the Cauvery Project, and the Godavari-Krishna delta. A programme of intensive agriculture around tube-wells and other kinds of wells in two districts of Uttar Pradesh is also being undertaken. Assistance available for such projects from international aid-giving agencies such as the World Bank, would be utilized.

Water Use and Management : An important element in the new strategy for agricultural development is the scientific management of irrigation water and its well integrated use with other production inputs and services.

The optimum utilization of water available from irrigation projects involves the study of various factors including soil and climatic conditions and water requirements of various crops at different stages of their growth, in addition to drainage needs, etc. Accordingly, three regional soil and water management pilot projects were initiated in 1968-69 with the technical collaboration of USAID, one each in the Tungabhadra Project (Karnataka), Bhakra Project (Punjab) and Dohrighat Pump Canal Project, Azamgarh (Uttar Pradesh). During 1970-71, four more similar projects were sanctioned in Girna Command (Maharashtra), Kakrapara Command (Gujarat), Mahanadi Delta (Orissa) and Rajasthan Canal (Rajasthan). It was proposed to have one such project in each State during the period of the Fourth Five Year Plan. These projects are designed to demonstrate water management techniques so as to improve utilization of available water resources. Evaluation studies of the existing irrigation projects with a view to improving water use and water management were undertaken in Purnea, Kakrapara and Nizamnagar project areas.

Evalution of sprinkler irrigation in order to find out its economics under Indian conditions for adopting it in the country was undertaken. A study was also undertaken to find the effects of loose sand and sand storms on the functioning of the canal system in the Rajasthan Canal area and to determine remedial steps to avoid silting of the system. On the basis of the findings of this study, afforestation and sand dune stabilization schemes estimated to cost about Rs.

1 crore have been sanctioned. Another study to determine the best cropping patterns and layout and design of land shaping and land levelling in the Tawa Command area is under way. Similar studies are proposed to be taken up in other irrigation projects. Technical literature in the form of bulletins having a bearing on soil survey and land classification, soil-water-plant relationships, lining of channels, irrigation of various crops, irrigation methods, estimating water requirements of various crops, etc., were issued by the Water Management Division of the Department for the use of State Governments, universities, research institutes, cultivators and extension workers.

Evaluation of the Programme : Foodgrains and some of the cash crops like cotton, jute, ground-nut and sugar-cane constitute practically the whole of our agriculture. In so far as the cash crops are concerned, although a number of high yielding and improved varieties have been introduced in the field, there is no impact on their output. Foodgrains occupy nearly three-fourth of the total cultivated as well as irrigated area in the country. High yielding varieties of wheat, rice, *jowar* and *bajra* were introduced during 1967-68 while those of maize have been in the field for a number of years. An analysis of the production of various foodgrains over the last 20 years indicates that while the production of total foodgrains increased at an annual compound rate of 2.98 per cent during 1949-50 to 1970-71, the average annual rate of increase during 1967-68 to 1969-70 is only 2.3 per cent and for the period 1967-68 to 1970-71 around 4.5 per cent.

A detailed study in respect of each of the foodgrains shows that but for wheat there is hardly any spectacular change in the growth rate of other foodgrains. The position in respect of *jowar* and pulses is perhaps the worst, both of which indicate just 17 per cent increase in their respective production levels during the last 21 years. There was, however, remarkable increase in the production of *bajra* and maize in 1970-71, so much so that the Fourth Plan target of 7 million tonnes for *bajra* has been more than achieved and the maize target of 8 million tonnes nearly achieved. But when the position regarding these two cereals is examined closely, it is found that a major part of these increases during the year 1970-71 was due to exceptionally good weather conditions which is difficult to sustain. These increases have taken place in most of the unirrigated States like those of Rajasthan, Gujarat and Uttar Pradesh.

Wheat production has no doubt nearly doubled from an all-time record level of 12.3 million tonnes during 1964-65 to 23.2 million tonnes during 1970-71. This is no small achievement; but even here it is found that of the 40 per cent increase in production during the period 1967-68 to 1970-71, not more than half (20 per cent) was a perma-

TABLE XXI

Actual* Foodgrain Production (1949-50 to 1970-71)

(In million tonnes)

Year	*Food grains*	*Rice*	*Wheat*	*Jowar*	*Bajra*	*Maize*	*Ragi*	*Small millets*
1	2	3	4	5	6	7	8	9
1949-50	59.0	25.3	6.8	7.0	3.2	2.9	1.5	1.9
1950-51	53.4	22.2	6.8	6.2	2.7	2.4	1.4	1.7
1951-52	53.8	22.8	6.3	6.7	2.4	2.9	1.2	1.9
1952-53	59.7	24.5	7.6	7.4	3.0	3.5	1.3	1.9
1953-54	70.3	30.0	8.1	8.1	4.3	3.7	1.8	2.5
1954-55	67.9	26.8	9.1	9.2	3.4	3.7	1.7	2.5
1955-56	68.0	28.9	8.9	6.7	3.5	3.2	1.9	2.0
1956-57	71.3	30.4	9.5	7.3	2.9	3.8	1.8	1.9
1957-58	64.4	26.7	8.0	8.6	3.6	3.9	1.8	1.7
1958-59	77.1	32.3	10.0	9.0	3.9	3.9	2.0	2.2
1959-60	75.5	31.9	10.3	8.6	3.5	4.2	2.0	2.0
1960-61	80.9	34.8	11.0	9.8	3.3	4.2	1.9	1.9
1961-62	82.8	36.0	12.1	8.0	3.7	4.4	2.0	2.0
1962-63	78.8	33.5	10.8	9.7	4.0	4.7	2.1	1.8
1963-64	80.6	37.2	9.9	9.2	3.9	4.7	2.0	2.0
1964-65	89.0	39.5	12.3	9.7	4.5	4.8	2.0	2.0
1965-66	71.6	30.7	10.4	7.5	3.7	4.9	1.3	1.8
1966-67	73.1	30.6	11.4	9.2	4.5	5.0	1.6	1.5
1967-68	93.8	37.8	16.5	10.0	5.2	6.4	1.9	1.9
1968-69	93.0	39.8	17.5	9.8	3.8	5.7	1.6	1.8
1969-70	99.5	40.4	20.1	9.7	5.3	5.7	2.1	1.7
1970-71**	107.8	42.4	23.2	8.2	8.0	7.4	2.2	1.9
Compound Growth rate								
1949-50 to 1970-71***	2.87	2.92	5.05	1.82	3.16	4.03		
1949-50 to 1969-70	2.81	2.95	4.59	2.16	2.55	3.81		
1949-50 to 1964-65	2.98	3.37	3.97	2.50	2.23	3.79		
1967-68 to 1969-70	2.98	3.42	10.22	(—)1.64	1.38	(—)6.01		
1967-68 to 1970-71	4.97	3.71	12.31	(—)6.03	17.82	4.35		
1964-65 to 1970-71	3.56	1.43	—	—	—	—		

*Adjusted with 1969-70 production as base.

**Figures for 1970-71 are the final estimates for the year.

***1965-66 and 1966-67 figures are adjusted.

TABLE XXII

Total Foodgrains : Area and Production

States	Area ('000 hectares)			Production ('000 tonnes)		
	1969-70	1970-71	(3)—(2)	1969-70	1970-71	(6)—(5)
1	2	3	4	5	6	7
Andhra Pradesh	9,438	9,180	(—) 256	7,399	6,897	(—) 512
Assam	2,382	2,142	(—) 240	2,119	2,194	(+) 75
Bihar	9,926	9,774	(—) 152	7,546	8,146	(+) 600
Gujarat	4,948	5,102	(+) 154	3,221	4,406	(+) 1,185
Haryana	3,831	3,835	(+) 4	4,567	4,732	(+) 165
Himachal Pradesh	827	789	(—) 38	982	967	(—) 15
Jammu and Kashmir	803	809	(+) 6	1,151	1,081	(—) 70
Kerala	928	926	(—) 2	1,243	1,294	(+) 51
Madhya Pradesh	16,534	16,709	(+) 175	9,769	10,696	(+) 927
Maharashtra	13,594	13,025	(—) 571	6,914	5,590	(—) 1,324
Karnataka	7,878	7,188	(—) 690	5,891	5,962	(+) 71
Nagaland	60	67	(+) 7	50	50	0
Orissa	5,748	5,918	(+) 170	5,033	5,151	(+) 118
Punjab	3,907	3,839	(—) 68	6,937	7,024	(+) 87
Rajasthan	11,371	12,836	(+) 1,465	4,750	8,813	(+) 4,063
Tamil Nadu	5,163	5,240	(+) 77	6,239	7,024	(+) 785
Uttar Pradesh	19,428	19,664	(+) 236	17,547	19,483	(+) 1,936
West Bengal	6,137	6,148	(+) 11	7,363	7,418	(+) 55
All-India	123,570	123,870	(+) 300	99,501	107,811	(+) 8,310

nent change and has resulted from increases in per hectare yields. Of the remaining 50 per cent increase in production, as much as 30 per cent was at the cost of non-remunerative but much more important grains like gram, *rabi* pulses and oil-seeds etc. The remaining 20 per cent was the result of an increase in the area during 1970-71 over 1969-70 purely because of seasonal factors.

All this would indicate that the things as they stand, India has no doubt the wherewithal for sustaining the wheat revolution. With the rapid progress of rural electrification in eastern U.P. and Bihar, a major part of the northern wheat zone will be covered by high yielding varieties and it can be safely assumed that these regions which at present produce not more than half of the Punjab yields might also be able to catch up particularly in the irrigated areas. But as far as other crops are concerned, the results achieved so far do not indicate any significant improvement in production levels.

Attempts now being made to evolve varieties much superior to those already in the field can be expected to materialize in the coming few years. Again, as a result of thousands of new tube-wells that were installed primarily to aid the cultivation of high yielding wheat, many districts now have the supplementary irrigation needed to grow paddy, which is now emerging as a major monsoon crop in the wheat zone. In addition, the increased efficacy of pest control, water management, fertilizer application and drainage systems in the major paddy zones themselves are finally leading to a steady rise in the level of output per hectare.

XIII. Crops

The cropping pattern of Indian agriculture is determined mainly by natural factors like rainfall and soil conditions. Technical factors like irrigation, improved varieties of seeds and the use of fertilizers effected the pattern only marginally till recently. With the introduction of the high yielding varieties, there has been some shift in the area under crops like wheat (Table XXIII). Market prices, no doubt, also cause marginal shifts in the land area devoted to different crops, but their overall effect is not pronounced.

For some individual crops like wheat, high yielding varieties have replaced old and inferior varieties in a major part of the irrigated area. Although the impact of the green revolution has not been evenly spread, wherever it has made itself felt, it has led to a new pattern in which farmers move in a continuous cycle from one new variety to another and from straight-forward cropping systems to those that are more complex. Multiple cropping is again the latest

TABLE XXIII

Shift in the Area under Wheat 1964-65 to 1970-71

State	Changes area 1970-71 over 1967-68				Changes area 1967-68 over 1964-65			
	Wheat	*Gram and Barley*	*Tur, Linseed and other Rabi pulses*	*Rape and Mustard*	*Wheat*	*Gram and Barley*	*Tur, Linseed and other Rabi pulses*	*Rape and Mustard*
1	2	3	4	5	6	7	8	9
Bihar	(+) 176	(—) 216	(+) 190	—	(+) 417	(—) 114	(—) 502	(—) 7
Haryana	(+) 272	(—) 309	(—) 3	(—) 115	(+) 124	(+) 60	—	(+) 78
Madhya Pradesh	(+) 667	(—) 83	(—) 97	(+) 44	(—) 497	(+) 214	(—) 340	(—) 24
Punjab	(+) 396	(—) 299	(—) 12	(—) 51	(+) 241	(—) 92	(—) 21	(+) 48
Rajasthan	(+) 206	(+) 152	(+) 32	(+) 53	(+) 82	(+) 171	(—) 35	(—) 10
Uttar Pradesh	(+) 893	(—) 408	(—) 124	(+) 136	(+)1,005	(—) 252	(—) 164	(+) 242
West Bengal	(+) 241	—	—	—	(+) 38	—	—	—
Total of above	(+)2,851	(—)1,442	(+) 180	(+) 66	(+)1,410	(—) 13	(—)1,052	(+) 327
All-India	(+)2,894	(—)1,225	(+) 244	(+) 87	(+)1,576	(+) 80	(—)1,118	(+) 334

trend in advancing agriculture. To grow more than one crop on the same land in the same year so that a variety of produce could be had from the land is the principle behind this new move. In a way, multiple cropping is the logical sequence of the high yielding varieties programme introduced in 1967-68. The innovative spirit of the individual farmers was exploited for introducing new crop varieties which were more prolific than the traditional ones and demand more attention from the farmer.

There are at the same time crops like indigo which have more or less disappeared as a result of the supply of synthetic substitutes. Among oil-seeds, ground-nut has made fairly good progress.

Foodgrains continue to predominate in the overall cropping pattern. In regard to the major crops (Table XXIV), the share of *total foodgrains has gone up from 80 per cent in 1950-51 to 81.8 per* cent in 1970-71. Among the foodgrains, cereals accounted for 66.9 per cent of the area during 1970-71 and pulses for the remaining 14.9 per cent. The share of the area under pulses has actually declined while that of foodgrains has increased during the 20 years of post-independence period from 1950-51 to 1970-71.

Rice is the staple food of a substantial section of the Indian population. Area under the crop has increased from 31 million hectares during 1950-51 to 37.4 million hectares in 1970-71. The impact of the introduction of high yielding varieties of rice has not been marked so far. The area under the crop during 1970-71 was 24.7 per cent of the cropped area as against 24.3 per cent during 1960-61. The next important crop from the consumer's point of view is wheat which improved its position substantially so as to occupy as much as 11.8 per cent of the area during 1970-71 as against 9.4 per cent during 1960-61 and 8.9 per cent during 1950-51. *Jowar* has now been relegated to the third position with 11.5 per cent of the area from 12.4 per cent during 1960-61. From among the other coarse grains, while *bajra* has maintained its share, maize has improved its position from 2.6 per cent during 1950-51 to 3.8 per cent in 1970-71. As against this, small millets and barley have lost much ground. Different coarse grains are grown in different regions but the cultivation af *jowar* and *bajra* is more widespread.

The principal non-food crops are cotton, jute, ground-nut and sugar-cane. Cotton, with 7.3 million hectares during 1970-71, shared only 4.8 per cent of the cropped area as against 5.4 per cent during 1950-51. Oil-seeds as a whole, constituting 10.1 per cent of the area were being grown on 15.3 million hectares during 1970-71. Nearly half of this area was occupied by ground-nut alone. Jute in which

TABLE XXIV

Distribution of Gross Sown Area Among Different Crops in India

Commodities	*1950-51 Area (Million hectares)*	*Percentage to the total*	*1960-61 Area (Million hectares)*	*Percentage to the total*	*1970-71 Area (Million hectares)*	*Percentage to the total*
1	2	3	4	5	6	7
Cereals						
1. Rice	31.0	23.6	33.5	24.3	37.4	24.7
2. *Jowar*	15.5	11.8	17.3	12.4	17.4	11.5
3. *Bajra*	10.3	8.1	11.4	8.2	12.9	8.5
4. Maize	3.2	2.6	4.4	3.2	5.8	3.8
5. *Ragi*	2.2	1.5	2.3	1.7	2.5	1.7
6. Small millets	5.6	4 7	4.8	3.4	4.8	3.2
7. Wheat	10.8	8.9	13.0	9 4	17.9	11.8
8. Barley	3.2	2.4	3.2	2.3	2.6	1.7
Total cereals	81.9	63.6	90 0	64.9	101.4	66.9
Pulses						
9. Gram	7.9	5.9	9.4	6.8	7.8	5.3
10. *Tur*	2 2	1.5	2.4	1.7	2.6	1.7
11. Pulses other than gram and *tur*	11.0	9.0	11.4	8.2	12.0	7 9
Total pulses	21.2	16.4	23.1	16.7	22.4	14.9
Total foodgrains	103.1	80.0	113.1	81.5	123.9	81.8
12. Sugar-cane	1 7	1.3	2.3	1.8	2.6	1.7
Oil-seeds						
13. Ground-nut	4.9	3 4	6.3	4.5	7.3	4.8
14 Castor-seed	0.6	0.5	0.4	0.3	0.4	0.3
15. Sesamum	2.0	1.5	2.2	1.5	2.4	1.6
Other oil-seeds	4.9	3.4	4.6	3.4	5.2	3.4
Total oil-seeds	12 3	8.8	13.5	9.7	15.3	10.1
Fibres						
16 Cotton	6.0	5.4	7.6	5.5	7.3	4.8
17. Jute	0.6	0.4	0.6	0.4	0 8	0.5
Other Non-food Crops						
18. Tobacco	0 4	0.3	0.4	0 3	0.4	0.3
19. Black pepper, dry chillies and ginger	1 6	1.2	0.7	0.5	0.8	0 5
20. Potato, fruits and vegetables	2.7	2.6	0.4	0.3	0.4	0.3
Total	128.4	100.0	138.7	100.0	151.5	100.0

India had a world monopoly before partition occupies just 0.5 per cent of the cropped area.

Among vegetables, potato has a place of pride and along with other vegetables has accounted for 0.3 per cent of the area. Plantation crops like tea, rubber and coffee, some dry fruits like cashew-nuts and spices like black pepper are highly valued crops. Bulk of them is being exported to earn the much needed foreign exchange. But they occupy a very small proportion of the land under cultivation.

Regional Distribution : Data on crop areas are available according to the administrative divisions of the country although crop zones in many cases cut across them (Table XXV). For instance, rice is grown in coastal areas with heavy and assured rainfall, both in the eastern and the western States. Regions which have ample supply of irrigation water also grow rice and they are located in most of the States. Important rice growing States are Andhra Pradesh, Bihar, Madhya Pradesh, Orissa, Tamil Nadu, Uttar Pradesh and West Bengal. Recently water-logged areas in Punjab and Haryana have also come under rice. Here rice is of the nature of a cash crop and this northern region has now emerged as an exporter of rice on a large scale.

Wheat is generally grown in black loamy soil in the *rabi* season as a winter crop. The October rain or supply of rain water is necessary for its growth. The central and northern parts of the country grow wheat in large areas, although it is primarily restricted to Haryana, Madhya Pradesh, Punjab, Rajasthan and Uttar Pradesh. The crop is also grown in parts of Bihar in the east and Gujarat and Maharashtra in the west. Wheat is now being introduced on a sufficiently large scale in West Bengal where the area under the crop during 1970-71 was as much as 320 thousand hectares.

Coarse grains are grown in Western India and the interior regions of the southern tract. Important *bajra* growing States are Rajasthan and Gujarat. Maharashtra also grows *jowar* but *bajra* is relatively more extensively grown in this State.

Cotton is an important crop in wheat and coarse grains zones and alternates with wheat, *jowar* and *bajra*. Important cotton growing States are Gujarat, Maharashtra, Karnataka and Punjab. Madhya Pradesh, parts of Tamil Nadu and Andhra Pradesh are also quite important but superior quality cotton is restricted to Punjab, Gujarat, Tamil Nadu, and Andhra Pradesh.

Jute is being cultivated primarily in the eastern region where there is heavy rainfall. While West Bengal accounts for nearly half of the area under jute, Bihar and Assam are also quite important

TABLE XXV

Area, Production and Yield of Foodgrains—1970-71

Area (A) : 000' hectares
Production (P) : 000' tonnes
Yield (Y) : Kg. per hectares

Crops		States													
		Andhra Pradesh	*Assam*	*Meghalaya*	*Bihar*	*Gujarat*	*Haryana*	*Himachal Pradesh*	*Jammu and Kashmir*	*Kerala*	*Madhya Pradesh*	*Maharashtra*	*Karnataka*	*Nagaland*	*Orissa*
1		2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Rice	A	3,396	2,001	99	5 232	489	267	105	222	875	4.334	1,356	1,160	67	4,566
		(9.1)	(5.3)	(0.3)	(14.1)	(1.3)	(0.7)	(0.3)	(0.6)	(2.3)	(11.6)	(3.6)	(3.1)	(0.2)	(12.3)
	P	4,650	2,016	114	4,539	598	450	124	397	1,271	3,647	1,663	1,953	74	4,383
		(11.0)	(4.8)	(0.3)	(10.8)	(1.4)	(1.1)	(0.3)	(0.9)	(3.0)	(8.6)	(3.9)	(4.6)	(0.2)	(10.3)
	Y	1,369	1,008	1,152	868	1,223	1,685	1,181	1,788	1,453	842	1,227	1,684	1,109	960
		(121)	(89)	(102)	(77)	(108)	(149)	(104)	(158)	(128)	(74)	(108)	(149)	(97)	(85)
2. Wheat	A	17	21	0.3	1,230	577	1,118	289	210	—	3,328	882	305	—	14
		(0.1)	(0.1)	(0.02)	(6.9)	(3.2)	(6.2)	(1.6)	(1.2)	—	(18.6)	(4.9)	(1.8)	—	(0.1)
	P	4	12	0.2	1,192	939	2,340	268	250	—	2,528	451	95	—	20
		(0.02)	(0.05)	(0.01)	(5.1)	(4.0)	(10.1)	(1.2)	(1.1)	—	(10.9)	(1.9)	(0.4)	—	(0.1)
	Y	235	585	667	969	1,627	2,093	927	1,191	—	760	511	310	—	1,429
		(18)	(44)	(61)	(75)	(125)	(161)	(71)	(92)	—	(59)	(39)	(24)	—	(110)
3. Coarse cereals	A	4,381	—	—	1,648	3,613	1,306	344	322	—	4,992	8,193	4,591	—	437
		(9.5)	—	—	(3.6)	(7.8)	(2.8)	(0.7)	(0.7)	—	(10.8)	(17.8)	(10.0)	—	(0.9)
	P	1,990	—	—	1,489	2,703	1,128	551	395	—	2,632	2,701	3,512	—	280
		(6.5)	—	—	(4.9)	(8.8)	(3.7)	(1.8)	(1.3)	—	(8.6)	(8.8)	(11.5)	—	(0.9)
	Y	454	—	—	904	748	864	1,602	1,227	—	527	330	765	—	641
		(69)	—	—	(137)	(113)	(131)	(242)	(185)	—	(180)	(50)	(116)	—	(97)
4. Pulses	A	1,113	79	1.2	1,266	284	89	44	52	34	1,994	1,482	663	—	828
		(9.3)	(0.7)	(0.01)	(10.6)	(2.4)	(0.7)	(0.4)	(0.4)	(0.3)	(16.7)	(12.4)	(5.5)	—	(6.9)
	P	159	28	0.7	617	81	36	15	38	13	669	373	189	—	428
		(3.5)	(0.6)	(0.2)	(13.7)	(1.8)	(0.8)	(0.3)	(0.8)	(0.3)	(14.9)	(8.3)	(4.2)	—	(9.5)
	Y	143	354	583	487	285	405	341	731	382	336	252	285	—	517
		(38)	(94)	(155)	(130)	(76)	(108)	(191)	(195)	(102)	(90)	(67)	(76)	—	(138)

Figures relate to pulses other than *Tur*

(Contd. next page)

TABLE XXV (Contd)

Area, Production and Yield of Foodgrains—1970-71

Crops		States							All-India
		Punjab	Rajasthan	Tamil Nadu	Uttar Pradesh	West Bengal	Manipur	Tripura	
1		16	17	18	19	20	21	22	23
1. Rice	A	389 (1.0)	119 (0.5)	2,686 (7.2)	4,553 (12.3)	4,949 (13.3)	140 (0.4)	269 (0.7)	37,432 (100)
	P	671 (1.6)	135 (0.3)	5,303 (12.6)	3,729 (8.8)	6,105 (14.5)	184 (0.4)	243 (0.6)	42,448 (100.0)
	Y	1,725 (152)	1,126 (100)	1,974 (174)	819 (72)	1,238 (109)	1,316 (116)	900 (80)	1,134 (100)
2. Wheat	A	2,200 (12.3)	1,471 (8.3)	1.3 (0.1)	5,863 (52.8)	320 (1.8)	—	—	17,892 (100.0)
	P	4,875 (17.5)	1,945 (8.4)	0.5 (62.02	7,541 (32.4)	700 (3.0)	—	—	23,247 (100.0)
	Y	2,215 (171)	1,322 (102)	385 (30)	1,286 (99)	2,188 (168)	—	—	1,299 (100)
3. Coarse cereals	A	840 (1.8)	7,667 (16.6)	2,090 (4.5)	5,465 (11.8)	140 (0.3)	—	—	46,121 (100.0)
	P	1,169 (3.8)	4,984 (16.3)	1,610 (5.3)	5,110 (16.7)	116 (0.4)	—	—	30,540 (100.0)
	Y	1,392 (210)	650 (98)	770 (116)	935 (141)	829 (125)	—	—	662 (100)
4. Pulses	A	54 (0.5)	1,952 (16.3)	408 (3.4)	1,078 (9.0)	540 (4.5)	—	0.6 (0.005)	11,966 (100.0)
	P	25 (0.6)	552 (12.3)	89 (2.0)	834 (18.6)	340 (7.6)	—	0.2 (0.004)	4,488 (100.0)
	Y	463 (123)	283 (75)	218 (58)	774 (206)	630 (168)	—	333 (189)	375 (100)

Note: Figures in bracket represent per cent of All-India for area and yield as Index with All-India equal to 100.

in this respect; Orissa and Uttar Pradesh are developing this crop now.

Oil-seeds are being cultivated in the coarse grains zones along with or in places of cotton. As for ground-nut the most predominant States are Gujarat, Andhra Pradesh, Tamil Nadu, Maharashtra and Karnataka. More than one-third of the total area under ground-nut is occupied by Gujarat and Maharashtra and another one-third by the three southern States of Andhra Pradesh, Tamil Nadu and Karnataka.

The traditional sugar-cane growing regions are Uttar Pradesh and Bihar. More than 50 per cent of the area under the crop is in Uttar Pradesh. The second position in the area as well as production of sugar-cane is now occupied by Maharashtra. Bihar has now been relegated to the third position in the total area under the crop. Other important sugar-cane growing States are Haryana, Andhra Pradesh, Punjab and Tamil Nadu.

Tobacco is grown in Andhra Pradesh, Gujarat and parts of Karnataka. The superior quality of virginia tobacco is, however, found only in the southern States of Andhra Pradesh and Karnataka. Gujarat tobacco is used primarily for *bidi*, *hookah* and snuff manufacturing. Tea gardens are located at high altitudes in mountainous areas in the southern and north-eastern regions.

Crop Production and Yields : In spite of big strides made in the past few years under the high yielding varieties programme land productivity in India is still low. This in a way indicates a sizeable potential for increasing production. On the other hand, it also indicates the amount of efforts in terms of investment that would be required to achieve internationally comparable levels. The vast gap in unit yields of various crops is apparent from the comparable data for other countries.

Wheat : The production of wheat in the country had nearly doubled between 1966-67 to 1970-71. Average yields also increased from 851 kg. per hectare during 1960-61 to 1,229 kg. per hectare in 1970-71 (Table XXVI). In certain selected States like Haryana, Punjab and West Bengal, the average yield is more than 60 per cent higher than the all-India level. A district like Ludhiana in Punjab today is producing above 30 quintals per hectare against the Punjab average of 22.2 quintals per hectare.

Nearly 50 per cent of the total production of wheat in the country is being produced in Uttar Pradesh and Punjab. Uttar Pradesh alone accounts for one-third of the total production. But yield levels in Uttar Pradesh are just the same as those obtainable at the all-India level. There is thus a huge potential for increasing the production of wheat in the country. There are quite a number of other new high

TABLE XXVI

Area Under Production and Yield Of Different Foodgrains

Area : 000' hectares
Production : 000' tonnes
Yield : Kg. per hectare

Crop	*Year*	*Area*	*Production*	*Yield*	*Index with 1950-51=100*			*Share in total foodgrains*	
					Area	*Production*	*Yield*	*Area*	*Production*
1. Rice	1950-51	30,810	20,576	668	100	100	100	31.66	40.49
	1960-61	34,128	34,574	1,013	111	168	152	29.53	42.15
	1970-71	37,432	42,448	1,134	121	206	170	30 22	39.38
2. Wheat	1950-51	9,746	6,462	663	100	100	100	10 00	12.72
	1960-61	12,927	10,997	851	133	170	128	11.18	13.41
	1970-71	17,892	23,247	1,299	184	360	196	14.44	21.56
3. Barley	1950-51	3,113	2,378	764	100	100	100	3.20	4.68
	1960-61	3,205	2,819	879	103	119	115	2.78	3.44
	1970-71	2,597	2,865	1,103	83	121	144	2.10	2.65
4. *Jowar*	1950-51	15,571	5,495	353	100	100	100	16.00	10.80
	1960 61	18,412	9,814	533	118	179	151	15 93	11.96
	1970-71	17,436	8,188	470	112	149	133	14 08	7.60
5. Maize	1950-51	3,159	1,729	547	100	100	100	3.25	3.40
	1960-61	4,407	4,080	926	140	236	169	3.82	4.97
	1970-71	5,829	7,413	1,270	185	429	232	4.72	6.87
6. Other cereals	1950-51	15,831	5,774	365	100	100	100	16.26	11.36
	1960-61	18,939	7,022	371	120	127	102	16 38	8.57
	1970 71	20,252	12,074	596	128	209	163	16.34	11.20
7. Pulses	1950-51	19,091	8,411	441	100	100	100	19.63	16.55
	1960-61	23,563	12,704	539	123	151	122	20 38	15.50
	1970-71	22,424	11,576	516	118	138	117	18 10	10.74
8. Total food-grains	1950-51	97,321	50,825	522	100	100	100	100 00	100.00
	1960-61	115,581	82,018	710	119	161	136	100.00	100 00
	1970-71	123,870	107,811	870	127	212	167	100.00	100.00

yielding varieties like Triple-Geni Dwarf, *Heera*, *Moti*, HD-1925 and HD-1977 which are superior to well accepted varieties like *Kalyan-Sona*. These varieties not only give higher yields but also do not lodge at higher dose of nitrogen.

Rice : There is not much improvement in the production or yield levels of rice as wheat. With 1950-51 as base, the index of rice production increased to 168 during 1960-61 and 205 during 1970-71. Corresponding figures for yield are 152 and 170 as against 128 and 196 for wheat. Against the all-India average yield of 1,134 kg. per hectare during 1970-71, yields in Tamil Nadu were 74 per cent higher and those of Punjab, Karnataka, Jammu and Kashmir and Haryana around 50 per cent higher. Andhra Pradesh and Tamil Nadu alone account for nearly one-fourth of the total production of rice in the country. Another one-third, is shared by the eastern States of Assam, Meghalaya, Bihar, West Bengal, Manipur and Tripura.

The new high yielding varieties of rice already evolved have failed to usher in the green revolution for rice. Rice is a *kharif* crop which is raised mainly when the sky is cloudy and enough sun is thus not available. Field studies have indicated that a proven high yielding variety like IR-8 has performed better in Punjab when raised as a *rabi* crop than in the heavy monsoon areas like Orissa and West Bengal where paddy cultivation takes place during the *kharif* season.

Research is still going on to evolve some better varieties to respond to the local requirements in different parts of the country. Latest field trials indicate that IR-20 has proved more successful than IR-8 on several counts. Not only does it give an additional yield of 2 tonnes per hectare, it has also better grain quality and has a broad spectrum of disease resistance. Similarly, two other promising fine grain rice varieties—*Sabarmati* and *Jamuna* have been evolved.

Pulses : Pulses have actually suffered as a result of the green revolution. Unfortunately, the foodgrains which imbibed the benefits of the new technology were making inroads on the area under pulses in recent years; and to some extent the area under oil-seeds too, which are another major source of protein. The fact that cereals and pulses are mutually substitutable can aggravate the shortage of pulses and oil-seeds in particular years. Mustard, *mung*, *urad*, linseed, gram and peas are also interchangeable with wheat in different parts of the country. When the demand for cereals goes up and the relative net price differential is favourable, the farmer is tempted to prefer wheat instead of the less remunerative pulses crop. That this has happened frequently and extensively is indicated by the figures.

The index number of area for wheat (base-1949-50 : 100) rose to 163.5 in 1968-69, the figure for maize to 174.1 and for rice to 120.4.

For pulses it was only 106.7. For gram, however, it actually dropped to 85.7. *Tur* has fared better than gram, having moved up to 108.1, which, in relation to the major cereals, is low. All the other pulses together approximated to 120, which is just short of the point reached by rice.

Recently some new varieties of pulses like *mung* have been evolved. *Mung* G-65, for example, which matures in 65 days and contains 28 per cent protein has yielded nearly 20 quintals per hectare at the research farm. Since pulses can be sandwitched between the wheat and the main *kharif* crops like rice and maize, there is a possibility of an increase in the area under them several fold without effecting the area under other crops. Similarly, the Rajasthan Agriculture University has evolved a new variety of *urad*—*Krishna* which matures in 90 days and has 22 per cent protein content. This has given 30 per cent higher yield as compared to the local variety. With a new emphasis now placed on the importance of pulses, the Union Government has sent detailed instructions to the States to formulate action programme to increase the production of pulses.

The strategy envisages the adoption of a package approach in large areas under irrigation and assured rainfall where rapid returns could be obtained with the available improved varieties. This could particularly be achieved in respect of *arhar*, gram and pea crops which have a capacity to yield about 2.5 tonne per hectare. It is proposed to cover an area of 8.52 million hectares which will yield an additional 1.43 million tonnes.

Coarse Grains : Although the production of coarse grains like *jowar*, *bajra*, maize, barley, etc. has not made much progress, they together constitute nearly 30 per cent of the total production of foodgrains in the country. The share of *jowar* has been reduced from over 10 per cent during 1950-51 to 7.6 per cent during 1970-71. Production of maize and *bajra* has, no doubt, shown a tremendous increase during 1970-71 but this has primarily been due to exceptional weather conditions (Tables XXVII & XXVIII). Otherwise in spite of the introduction of high yielding varieties of *jowar*, *bajra* and maize, much progress does not seem to have been made in their production.

Rajasthan and Uttar Pradesh produce nearly one-third of the total coarse grains in the country. Gujarat, Madhya Pradesh, Maharashtra and Karnataka produced another 38 per cent of the coarse grains during 1970-71 and the balance was shared by the remaining States. In States like Punjab, coarse grains are being substituted by superior grains such as wheat and rice.

TABLE XXVII

Area, Production and Physical Change Under Maize in Important States

Area : '000 hectares

Production : '000 tonnes

State	*Area*		*(3)—(2)*	*Production*		*(6)—(5)*
	1969-70	*1970-71*		*1969-70*	*1970-71*	
1	2	3	4	5	6	7
Bihar	953.3	980.7	(+) 27.4	865.6	1,071.8	(+) 206.2
Madhya Pradesh	623.3	590.0	(—) 33.3	417.7	633.8	(+) 216.1
Punjab	562.9	572.0	(+) 9.1	826.8	867.0	(+) 40.2
Rajasthan	782.9	757.4	(—) 25.5	518.0	928.4	(+) 410.4
Uttar Pradesh	1,505.3	1,496.9	(—) 8.4	1,192.2	1,768.9	(+) 576.7
Others	1,434.5	1,441.7	(+) 7.2	1,854.0	2,143.0	(+) 289.0
All-India	5,862.2	5,838.7	(—) 23.5	5,674.3	7,412.9	(+) 1,738.6

TABLE XXVIII

Area, Production and Physical Change Under *Bajra* in Important States

Area : '000 hectares

Production : '000 tonnes

States	*Area*		*(3)—(2)*	*Production*		*(6)—(5)*
	1969-70	*1970-71*		*1969-70*	*1970-71*	
1	2	3	4	5	6	7
Andhra Pradesh	601.9	534.0	(—) 17.9	320.0	291.1	(—) 29.9
Gujarat	1,784.2	1,782.1	(—) 2.1	1,204.4	1,574.9	(+) 370.5
Haryana	928.0	879.0	(—) 49.0	516.0	822.0	(+) 306.0
Maharashtra	2,257.2	1,928.5	(—) 328.7	762.9	787.7	(+) 24.8
Karnataka	566.7	510.0	(—) 56.7	226.6	263.5	(+) 36.9
Rajasthan	4,346.4	5,126.9	(+) 780.5	807.8	2,673.6	(+) 1,865.8
Uttar Pradesh	1,020.2	1,111.0	(+) 90.8	752.7	861.3	(+) 108.6
Others	988.2	1,035.9	(+) 47.7	736.4	727.1	(—) 9.3
All-India	12,492.8	12,907.4	(+) 414.6	5,326.8	8,000.2	(+) 2,673.4

Cash Crops : Important cash crops in the context of Indian agriculture are cotton, jute, oil-seeds and sugar-cane (Tables XXIX & XXX). Of late, there has been stagnation in the production of cash crops, particularly cotton and jute, in respect of which the peak levels were reached in 1967-68 and have never since been surpassed despite various package programmes initiated by the Centre. Cotton production in 1970-71 was just 4.6 million bales as against 5.7 million bales during 1964-65 and per hectare yield has come down from 122 kg. to 108 kg. during this period. More or less same is the position of jute where the production came down from 6.3 million bales during 1967-68 to 4.9 million bales during 1970-71. The present yield is only 1,177 kg. per hectare as against 1,293 kg. in 1967-68. The production of ground-nut at 6.1 million tonnes is just a shade higher than the 1964-65 level and same is with regard to yield in spite of the fact that the current year was the best with regard to natural factors. The production as well as yield of sugar-cane is also lower than the levels achieved during the last few years.

Cotton : The important cotton growing States in the country are Gujarat (34.5 per cent), Punjab (18.1 per cent), Maharashtra (10.6 per cent) and Haryana, Maharashtra and Tamil Nadu (over 7.5 per cent each). Although India occupies nearly 25 per cent of the world area under cotton, the yields are the lowest as compared to those in the major cotton growing countries like the U.S.S.R. and the U.S.A. With a view to boosting the production of cotton and doing away with the country's long dependence on imports, Government has approved a three-year programme costing Rs. 14.74 crores. This programme would popularize the use of improved seeds of new varieties, application of recommended doses of fertilizers and adoption of plant protection measures. Six districts have been selected in the irrigated zone : Ferozepore and Bhatinda in Punjab, Hissar in Haryana, Ganganagar in Rajasthan, Baroda in Gujarat and Coimbatore in Tamil Nadu. It is proposed to cover a total of 5.6 lakh hectares on cotton cultivated area in these districts. Demonstrations of farm holdings in these areas show that cotton production can be stepped up by 40 to 100 per cent.

In non-irrigated areas, it is proposed to initiate a programme on a pilot basis in approximately 140,000 hectares spread over seven districts in different States. These are Kurnool in Andhra Pradesh, Surendranagar in Gujarat, Khargon in Madhya Pradesh, Akola and Yeotmal in Maharashtra, Dharwar in Karnataka and Tirunelveli in Tamil Nadu. Baroda and Surendranagar account for about 30 per cent of the total area under cotton crop and about 35 per cent of the total production of cotton in Gujarat. The per hectare yield in

these districts, which has gone up by about 50 per cent over the three plan periods reached 202.5 kg. in the Baroda and 136 kg. in the Surendranagar districts in 1965-66.

The irrigated areas for cotton are spread over some 55 districts of the country. More than half of the areas are located in a few sizeable blocks in Punjab, Rajasthan, Haryana, Gujarat and Tamil Nadu. The areas are not only compact, but also offer potential for raising yield levels.

Jute : More than 50 per cent of the jute production in the country comes from West Bengal alone and another 36 per cent from Assam and Bihar. Orissa produces 6 per cent followed by 2 per cent in Uttar Pradesh and 1 per cent in Meghalaya. In spite of the development schemes for jute, average yields have remained stagnant over the last many years. The development programmes for jute have, therefore, been accelerated and are likely to get a further boost through much larger outlays in the remaining period of the Fourth Five-Year Plan. The Government has also set up an Action Group to formulate an intensive jute development programme.

Oil Seeds : India had been the world's premier supplier of vegetable oils and fat some 30 years back. Now it is unable to meet even the needs of internal consumption. In the early sixties the per capita availability of 4kg. compared very unfavourably with the world average of 10 kg, and the optimum nutritional needs of 20 kg. The availability has since declined further. In the planning decades, the output of oil-seeds has increased at an annual rate of 2.2 per cent. The growth in the sixties had declined to mere 0.32 per cent a year. With the growth in population of 2.5 per cent a year, it is inevitable that per head availability should decline and find reflection in continually rising prices.

In order to achieve a breakthrough in raising the production of ground-nut by extending intensive cultivation programmes to large areas, a Centrally sponsored scheme was first implemented in three States. In 1971-72, the target had been fixed to cover 2.25 million hectares covering 17 States. A subsidy of 25 per cent, on plant protection chemicals besides the entire cost of addititional staff is being met by the Union Government. This entails financial assistance to the tune of Rs. 101.71 lakhs.

Recently, two short duration and high yielding varieties of castor *Aruna* and CCH 3 have been evolved. The demonstration was first organized in 1969-70 and was continued during 1970-71. Encouraged by the performance of these new varieties, it is proposed to experiment on an area of 1,721 hectares in 14 States. A sum of

TABLE XXIX

Area, Production and Yield of Important Cash Crops

Area : 000' hectares

Production : 000' tonnes

Yield : Kg. per hectare

Crop	Year	Area	Production	Yield	Index with 1950-51=100		
					Area	Production	Yield
1	2	3	4	5	6	7	8
1. Cotton	1950-51	5,882	2,875	88	100	100	100
	1960-61	7,610	5,293	125	129	184	142
	1970-71	7,610	4,556	108	129	158	123
2. Jute	1950-51	571	3,309	1,043	100	100	100
	1960-61	629	4,134	1.183	110	125	113
	1970-71	750	4,905	1,178	131	148	113
3. Sugar-cane	1950-51	1,707	5,705	3,343	100	100	100
	1960-61	2,415	11,141	4,613	142	195	138
	1970-71	2,657	13,194	4,966	156	231	149
4. Ground-nut	1950-51	4,494	3,481	775	100	100	100
	1960-61	6,463	4,812	745	144	138	96
	1970-71	7,293	6,065	835	162	174	108
5. Other Oil-seeds (excld. ground-nut)	1950-51	6,233	1,677	269	100	100	100
	1960-61	7,307	2,170	297	117	129	110
	1970-71	8.053	3,123	388	129	186	144
6. Total	1950-51	18,887	17,047	903	100	100	100
	1960-61	24,424	27,550	1,128	129	162	125
	1970-71	26,363	31,843	1,208	140	187	134

TABLE XXX

Area, Production and Yield Under Cotton, Jute, Ground-nut and Sugar-cane

All-India

Year	*Cotton*			*Jute*			*Ground-nut*			*Sugar-cane*		
	Area million hectares	*Production million bales*	*Yield per hectare in kg.*	*Area million hectares*	*Production million bales*	*Yield per hectare in kg.*	*Area million hectares*	*Production million tonnes*	*Yield per hectare in kg.*	*Area million hectares*	*Production million tonnes*	*Yield per hectare 000 kg.*
1	2	3	4	5	6	7	8	9	10	11	12	13
1964-65	8.4	5.7	122	0.8	6.1	1292	7.4	6.0	814	2.6	121.9	46.8
1967-68	8.0	5.5	123	0.9	6.3	1293	7.6	5.7	759	2.0	85.5	46.7
1968-69	7.6	5.1	122	0.5	2.9	1002	7.1	4.6	653	2.5	124.7	49.2
1969-70	7.7	5.3	122	0.8	5.7	1327	7.1	5.1	720	2.7	135.0	49.1
1970-71	7.6	4.6	108	0.8	4.9	1177	7.3	6.1	832	2.7	128.8	48.5

Rs. 125 per hectare for rain-fed crop and Rs. 200 per hectare for irrigated crop will be provided.

In order to increase the production of castor, a Centrally sponsored scheme was introduced in 1970-71 in Andhra Pradesh, which has the largest area under the crop in the country. The coverage of the target for 1971-72 for the package programme was 40,000 hectares for *kharif* and 6,000 hectares in *rabi*. Production of pure seed and demonstration was to be taken up during 1971-72 at an estimated cost of Rs. 1.50 lakhs. Similarly, a scheme to increase the production of rape-seed and mustard-seed has been envisaged at a cost of Rs. 9 lakhs.

Apart from arranging demonstrations for the production of soyabean at a cost of Rs. 3.03 lakhs, a Centrally sponsored scheme has been drawn to bring four lakh hectares of land under this crop.

Sugar-cane : The production of sugar-cane in terms of *gur* fell from 12.8 million tonnes in 1965-66 to 9.5 million tonnes in the following year. Since then, production progressively rose to 13.4 million tonnes in 1969-70, but in 1970-71 it again declined to 12.3 million tonnes. Of the total production in the country, Uttar Pradesh alone accounts for 42.2 per cent, although yield in the State is just 82 per cent of the all-India average. Highest yields come from Karnataka, Tamil Nadu and Maharashtra which account for 6.4, 8.7 and 12.7 per cent respectively of the total production.

XIV. Population and Food Supply

According to the 1971 Census, the population of India is 547.4 millions, which accounts for 15 per cent of the world's population. She has, on the other hand, only 2.4 per cent of the world's land area with low levels productively. This would explain the crux of the problem of population and food supply.

In the last 70 years, every succeeding decade has ended up, by and large, with a higher net growth rate of population compared to the previous one. So much so, the total population stood more than doubled during the last 70 years. The last decade (1961-71) witnessed the pheonomenal growth of 24.66 per cent. At a compound rate of growth of 2.5 per cent this is not very much different from the one experienced in the last decade. India's population will be doubled by the end of the present century.

This rapid growth of an already very large population poses a serious challenge to India's agriculture. It has not only to feed these growing numbers but also to provide raw materials for the country's growing agro-based industries and, particularly for those which enable it to earn the much needed foreign exchange for carrying through other developmental programmes in the country.

Since independence food production has expanded rapidly ; but the rate of increase in demand for foodgrains generated as a result of increase in population and rising income has outstripped the rate of increase in foodgrains' production. During 1950-51 to 1970-71 the country had imported 64 million tonnes of cereals.

Although the index of food production with 1950-51 as base, has gone up to 182·7 during 1970-71 against a population index of 152.7, the food supply position is not quite easy in respect of all types of foodgrains. Even otherwise, population index as compared to the food production index stood higher right upto 1966-67. Food imports were the lowest during 1955-56 at 1.4 million tonnes and increased steadily to reach the highest peak level of 10.4 million tonnes during 1965-66 (Table XXXI). Thereafter, as a result of increase in production, imports have been on the decline. At one time it had even been announced by the Government that all concessional imports of foodgrains would come to an end after 1971. Since Indian agriculture is susceptible to weather conditions, there will always be fluctuations in production. As a result, the country did face a series of bad seasons like between 1965 and 1967.

Besides providing adequate food and proper clothing as the basic necessity for the people, Indian agriculture also provides the means of livelihood for practically the whole of the rural population. Since foodgrains occupy as much as 75 per cent of the cultivated land and employ perhaps 72 per cent of its agricultural labour force for its production, higher levels of food production constitute an important aspect of agricultural development programmes. The Five-Year Plans have placed a good deal of emphasis on this aspect. Available data on foodgrains' production since 1951 show that nearly half of the increase is due to extension in area and the other half due to increase in productivity. Ever since the introduction of high yielding varieties during 1966-67, there have been sharp increases in the production with hopes of abundance in the near future. Wheat production has, no doubt, more or less doubled but the same is not the case with regard to other foodgrains. The annual growth rate for the period 1967-68 to 1970-71 has been negative for *jowar*, minor cereals and pulses (Table XXXII). The Fourth Plan target of 7 million tonnes for *bajra* was over-achieved during 1970-71 and that for maize was near the target. The position

TABLE XXXI

Population and Food Supply

Year	Population (Mid-Year)		Production of Foodgrains		Imports	Net Availability		Per Capita Availability	
	Million	Index	Actual (million tonnes)	Index Agricultural Year 1949-50=100	Cereals (million tonnes)	Cereals (million) tonnes)	Pulses (tonnes)	Cereals (gram per day)	Pulses
1	2	3	4	5	6	7	8	9	10
1950-51	363.35	100.0	50.8	90.5	4.8	44.3	8.0	334.1	60.9
1955-56	397.49	109.4	66.9	115 3	1.4	52.4	10.3	360.4	70.5
1960-61*	442.65	121.8	82.0	137 1	3.5	64.4	11.2	398.8	69.0
1961-62	452.79	124.6	82.7	140.3	3.6	66.3	10.3	400.7	62.3
1962-63	463.16	127.5	80.2	133.6	4.6	64 8	10.1	382.4	59.5
1963-64	473.77	130.4	80.6	136.5	6.3	69.3	8.8	398.3	50.6
1664-65	484.62	133.4	89.4	150.8	7.5	73.7	10.9	414.7	61.6
1965-66	495.72	136.4	72.3	121.3	10.4	64.8	8.7	355.9	47.6
1966-67	507.07	139.6	74.2	123.8	8.7	66.6	7.3	356.8	39.1
1967-68	518.68	142.7	95.1	159.0	5.7	76.1	10.6	397.0	55.1
1968-69	530.56	146.0	94.0	157.5	3.9	76.6	9.1	390.8	46.4
1969-70	542.71	149.4	99.5	168.6	3.6	79.2	10.2	394.3	50.8
1970-71*	555.02	152.7	107.8	182.7					

*Population figures for the years 1960-61 to 1970-71 have been calculated at an annual compound growth rate of 2.29 as calculated from the actual population figures for 1960-51 and 1970-71.

TABLE XXXII

All-India Production of Different Crops

('000 Metric Tonnes)

Crop	*1967-68*	*1988-69*	*1969-70*	*1970-71*	*Annual growth rate from 1967-68 to 1970-71 (%)*	*Target 1973-74*
1	2	3	4	5	6	7
1. Rice	37,612	39,761	40,430	42,448	4.30	52,000
2. Wheat	16,540	18,651	20,093	23,247	13.52	24,000
3. Maize	6,270	5,701	5,674	7,413	6.08	8,000
4. *Bajra*	5,185	3,802	5,327	8,000	18.10	7,000
5. *Jowar*	10,048	9,804	9,721	8,188	(—) 3.52	
6. Other cereals	7,295	5,876	6,565	6,954	(—) 1.56	23,000
7. Pulses	12,102	10,418	11,691	11,576	(—) 2.40	15,000
8. Total foodgrains	95,052	94,013	99,501	107,811	4.36	129,000

about rice which is the most important food crop of India is not that satisfactory. In eastern, central and southern India rice is the staple food and if it is available in plenty, the people would consume it in preference to other foodgrains. Consequently, there is always a pressure on rice stocks. Planning for food production has to take into consideration this important aspect.

The future food problem in a nutshell will, therefore, be of a restrictive nature in the sense that it would involve a specific emphasis on the production of rice and pulses. With regard to rice, varieties have to be evolved suitable for the different agro-climatic zones. As regards pulses, the position is a little complicated. The area under cultivation is about 17 per cent of the total cultivated land in the country and yet the highest production level so far achieved has not exceeded 12 million tonnes in the best year. The position remained more or less unchanged during first three Plan periods. Little attention was paid to the development of pulse cultivation and no serious efforts were made to overcome the limiting factors. Since most of the pulses are grown on unirrigated lands, they have invariably depended on the vagaries of the monsoon. Again, with the introduction of the high yielding varieties, foodgrains which imbibed the benefits of new technology, have made inroads on the area under pulses.

Recently some efforts have been made by research workers and there are some possibilities for increasing the yield of pulses particularly during the *kharif* season through control of pests. In *kharif moong* alone, the yield could almost be doubled through pest control measures.

Self-Sufficiency : The objective of self-sufficiency in foodgrains as the goal to be reached through increased foodgrains' production was first announced early in 1949. The deficit to be made up by the end of March 1952, was at that time calculated at 4.9 million tonnes over the level of production in 1947-48 on the basis of the then prevailing level of consumption. The target for additional production of foodgrains was, therefore, fixed at 4.9 million tonnes. Production targets for foodgrains under the First and Second Five-Year Plans were drawn up with a view to reducing the large gap between internal production and consumption requirements, the deficits proposed to be made up being 7.7 million tonnes and 10.2 million tonnes during the five-year periods 1951-56 and 1956-61, respectively. The Second Plan target of additional production of 10.2 million tonnes of foodgrains was revised to 15.7 million tonnes after the publication of the Plan. The objective of self-sufficiency was reiterated either explicitly or implicitly while fixing the Third Plan and the original Fourth Plan (1966-71)

targets of 102 and 132 million tonnes to be attained by 1965-66 and 1970-71, respectively. The revised Fourth Plan (1969-74) target of 129 million tonnes of foodgrains' output to be attained in 1973-74 provided (though this is not explicitly stated) for the requirements for addition to buffer stocks and pipelines stocks and some exports too.

Among the reasons for continued deficits in foodgrains despite increased production, one could put an unrealistic estimation of demand also. For example, the deficit of 4.9 million tonnes estimated under the 1949 plan of self-sufficiency was based on the projected net requirements for the 1952 population at the same per capita availbility as in 1947-48 from internal production as well as from imports. The implied assumption was that the entire additional qualities produced would be available for consumption and not even the usual allowance for seed, feed and wastage was made. The First Plan target of foodgrains production too was based on a stable level of per capita consumption as in 1949-50. Under the Second Plan, for the first time, increase in per capita consumption, taking into account the increased incomes generated by the Plan, was allowed for. However, the population estimates originally contemplated went wide off the mark and thus even the revised target of 82 million tonnes, which was actually achieved, did not meet the internal requirements fully. Foodgrains production in the last year of the Third Plan, *viz.* 1965-66, was adversely affected by severe drought and consequently it slumped to 72 million tonnes whereas in the previous year, *viz.*, 1964-65, output reached the record level of 89.4 million tonnes. Again, during the years 1967-68 and 1968-69 although the production levels reached were 95.1 and 94.0 million tonnes respectively, these were considerably below the targets envisaged under the original Fourth Plan (1966-71). In consequence, India continued to import cereals despite the emphasis given to the food production programmes in the successive Plans.

Nutritional Requirements : With self-sufficiency as defined in the previous section, it may be assumed that the country has reached a level of near self-sufficiency in cereals, particularly when all concessional imports are to be stopped and Government stocks at over 9 million tonnes as at present are the highest on record. The problem, however, remains with regard to the provision of a nutritively balanced diet to the people. According to the recommendations of Nutritional Advisory Committee, the foodgrains requirement in a balanced diet of an adult male in India is 397 grams of cereals and 85 grams of pulses per day. The balanced diet includes several items of what are known as protective foods such as milk, meat, eggs, etc. Since these protective foods are not being produced, at

present, in quantities adequate for balanced diet, a large majority of the people have to make up for these deficiencies by additional consumption of cereals. This would call for a further addition to the quantities of cereals recommended by the Nutritional Advisory Committee.

It has been estimated that the daily per capita requirements of the Indian population for a reasonably satisfactory level of nutrition would be 2,100 calories of energy and 61 grams of proteins per day. As against this, the per capita, per day availability of cereals and proteins as at present are of the order of 2,000 calories and 48 grams respectively. The average Indian diet today contains only 5.6 grams of animal protein which constitutes only 9.1 per cent of the necessary protein intake. In affluent societies, nearly half of the protein intake is in the form of animal protein. Allowing for wastage of food between availability at the retail level and the cooking, the minimum nutritional target for the country may be placed at 2,370 calories and 66.6 grams of protein, including 10 grams of animal protein per day per adult. Dr. P.V. Sukhatme has worked out the least cost combination of major food groups needed per head per day on the basis of this minimum level. The quantities so worked out along with quantities currently available are given in the Table below. According to Sukhatme, one in every four of India's people appears to be underfed and two out of every four are malnourished.

TABLE XXXIII

Per Capita Quantities of Major Food Items Available and Needed to Meet Minimum Nutritional Target

Item	*Quantity per day (gm.)*	
	Available	*Needed*
Cereals	394	403
Pulses and nuts	51	104
Starchy roots	39	46
Sugar	44	50
Fruits and vegetables	58	137
Meat	4	7
Fish	1	17
Eggs	3	2
Milk and milk products	116	201
Fats and oils	9	18

This indicates the deficiencies in regard to each item of the minimum nutritive diet. The deficiencies are particularly large in respect of pulses and protective food items like fruits and vegetables, milk, meat and eggs. If these deficiencies are to be made good concurrently with the requirements of additions to the population, agricultural production, including that of poultry and animal husbandry will need to be substantially stepped up. Efforts now being made to meet this challenge are special programmes for the development of poultry, piggery, livestock and horticulture etc. Although the progress with regard to livestock development is not very encouraging, poultry and piggery development can be expected to develop much faster particularly when maize and other coarse grains are available in quantities at reasonable prices. With regard to horticulture, States like Himachal Pradesh have had a real break-through. The area under apple cultivation, for example, has progressively increased from 1,214 hectares in 1956 to 42,700 hectares in 1971. The Government is now pursuing a Rs. 45 crore World Bank project to boost fruit cultivation and production. Processing and marketing is being pursued by the Government. A cold storage, the largest of its kind in India, is nearly complete at Delhi.

A 15-year horticulture development plan has been drawn up under which one-third of the total cultivable area of Himachal Pradesh will be brought under horticulture at the rate of 8,094 hectares per year. An Agricultural Refinance Corporation for financing the planting of apple orchards by individuals is also being set up.

Consumption and Purchasing Power : The actual consumption by an individual or a family or a section of the population depends not so much on average availability but its purchasing power. A detailed study of one region (Maharashtra) revealed that in the year of the study (1958), only when the total monthly expenditure reached Rs. 13 to 18 per person, the dietary intake amounted to 2,170 calories with proteins intake of 60.4 grams of which only 2.9 grams consisted of animal proteins. In the region concerned, 60 per cent of the people lived on income level below Rs. 18 per head per month. This emphasizes the need not only of producing more food but also producing it at costs which should preferably be lower than the prevailing.

The problem of food and nutrition focussed attention of the Planning Commission for the first time in the Fourth Five-Year Plan which attempted to set out an integrated nutrition programme. Some of the measures recommended by the Plan are :

(a) Improvement of staple foods.
(b) Production of unconventional protein foods.
(c) Nutrition education.
(d) Special measures for vulnerable groups.

The outlays on nutrition programmes in the various sectors are as follows :

TABLE XXXIV

Outlay on Nutrition

Sl. No.	*Department*	*Central sector*	*States sector*	*Total*
1.	Health and Family Planning	5.13	—	5.13
2.	Community Development	13.90	2.10	16.00
3.	Food	13.05	—	13.05
4.	Education	—	5.00	5.00
5.	Social Welfare	6.00	—	6.00
6.	Total	38.08	7.10	45.18

Recently under the high yielding varieties programme new seeds being evolved contain more of protein or lysine content. In the case of wheat and rice the total available protein content has been increased. The recently released varieties of *Shakti* and *Rattan* maize are said to be almost as good as milk. Because of the high lysine content, maize has high quality protein. Feeding tests conducted with the new varieties of maize have shown that children fed on them become as strong as those fed on milk.

XV. Animal Husbandry and Dairying

Cattle in India pose a difficult problem at a time when the economy is rapidly growing and agriculture is required to play a leading role. Mixed farming in India enabled products of land to be fully utilized for both human and animal feed. This situation is now slowly changing. Finer rice and wheat for which demand is rapidly rising are poor yielders of fodder. On the other hand, milk consumption is below nutritional level and with increasing income and population the total demand for milk tends to rise. The religious traditions discourage cattle slaughter. Weeding of cattle is, therefore, done by nature through malnutrition which is indiscriminate in its impact. This keeps down quality without adequately controlling the number. Without mechanization and rural transportation, the farmer depends on bullocks and the use of cattle as a source of draft power and supply of organic manure still dominates. With expanding irrigation and double cropping, there is an increasing pressure on demand for cattle for which the present cattle population, despite its

large number is ill-equipped. A beginning has been made under the Five-Year Plans to improve systematically the quality of cattle with the long-term objective of increasing output of cattle products with proportionately less feeding costs.

Livestock Population : The total livestock population in India consisting of cattle, buffaloes and other small animals like goats, sheep, etc., was 343.8 millions according to the Livestock Census for the year 1966 Table XXXV. The bulk of the livestock consists of cattle and buffaloes, which together accounted for 67 per cent of the total. Numerically, the livestock population in India, judged on the basis of cattle and buffaloes only, is one of the largest in the world. According to 1951 data, India had about one-fifth of the world's total cattle population and one-half of the total buffalo population. Though cattle in India were then three times more than buffaloes, India was probably the world's most important buffalo-rearing country. Indian cattle and buffalo population accounted for over 68.5 per cent of the total number in the Asian continent.

TABLE XXXV

Livestock Population : 1945—1966

(In thousands)

	1945	1951	1956	1961	1966
Cattle	135,960	155,099 (155,238)	158,651	175,557	176,057
Buffaloes	40,593	43,351 (43,401)	44,916	51,211	52,920
Sheep	37,729	38,829 (38,962)	39,246	40,223	42,014
Goats	46,286	47,077 (47,115)	55,405	60,864	64,566
Horses and ponies	1,399	1,514 (1,514)	1,483	1,327	1,149
Mules	45	60	40	53	75
Donkeys	1,132	1,239 (1,249)	1,055	1,096	1,054
Camels	654	629	776	903	1,028
Pigs	3,707	4,420 (4,424)	4,932	5,172	4,975
Others				22	30
Total livestock	267,505	292,218 (293,595)	306,504	336,428	343,868

Note : Figures in brackets are comparable in coverage with those of subsequent Livestock Census.

Looked from another angle, India carried in 1951 nearly 35.1 per cent more cattle and buffaloes than Europe including U.S.S.R., or about 21.7 per cent less than that in vastness of the cattle and buffalo population when we consider that India has a substantial proportion of population which does not eat meat and also the fact

that the geographical area of India is much smaller than the continents of Europe or America. This inevitably puts a heavy pressure on India's limited land recources. Countries like Denmark have a larger density of cattle and buffalo per sqaure km. than India and countries like New Zealand, Argentina and Australia have a larger ratio of cattle population to human population.

The total livestock population increased by about 28.5 per cent during the 20 years from 1950-51 onwards. During 1950-51 to 1955-56 the increase is more spectacular in the case of work animals *e.g.* mules (41.6%), camels (13.9%) and goats (16.1%). Male buffaloes have increased by 6.6 per cent while the female buffaloes have increased by 4.5 per cent only. The cattle population has increased only marginally.

Male cattle are useful for work in the field or for transport while male buffaloes are used mainly for breeding, except in a few States where they are used for work. Consequently, the number of male cattle is larger than that of cows, but in the case of buffaloes females outnumber males. Again, the ratio of young-stock to cattle is relatively higher than that of young-stock to total buffaloes. This would imply larger waste of young-stock of cattle, probably caused by religious inhibition against killing cows.

Livestock in Rural and Urban Areas : Livestock population is proportionately much larger in rural areas, since the occupation of animal husbandry is largely combined with cultivation of land. However, owing to inadequate transport facilities for carrying fresh milk over long distances, a part of the livestock population is located in towns and cities. Besides, in cities, horses are used for drawing carriages and bullocks for carts for local transport of goods. In 1956, of the total livestock of 306.5 millions in the country, 11.9 millions or about 4 per cent were in cities and towns, the rest were in rural areas.

Nearly 6 per cent of the total poultry birds are maintained in urban areas In 1956, out of total 94.7 million poultry birds in the country 5.5 million birds were in urban areas.

Work Animals : Ploughing of land in India is done traditionally with the help of bullocks. Cows are rarely used, since it is supposed to affect adversely their milking capacity. Buffalo males are slow and inactive. They have, however, a capacity to withstand wet weather. For this reason, they are employed for cultivation of land in high rainfall areas and for load carrying, especially for

carrying water. The statistical details of the work animals in India during the decade 1956-66 are given in the following Table.

TABLE XXXVI

Work Animals

	(In thousands)		
	1956	*1961*	*1966*
Cattle			
Working males	62,475	68,704	69,177
Males used for breeding and work both		1,964	2,255
Working females	1,837	2,150	1,983
Buffaloes			
Working males	5,953	6,645	6,972
Males used for breeding and work both		493	620
Working females	420	487	386
Horses and ponies	1,482	1,327	1,148
Mules	40	52	75
Donkeys	1,054	1,096	1,054
Camels	775	903	1,028

Dairy Animals: Bovine animals—cows and buffaloes and to a small extent, sheep and goats—are used for milking. According to the 1966 Livestock Census, there were 20.97 million cows and 12.92 million buffaloes in milk in India. Animals in milk increased by about 18 per cent during 1945-61 but the increase over the next 5 years was only marginal—1.05 per cent for cows and 3.7 per cent for buffaloes. Human population during this period increased at a faster rate. But as the increase in cattle led to increased pressure on fodder supply, the increase in the number of dry cattle was faster. The proportion of dry and wet calved cows increased from 53.6 per cent

in 1945 to 55.7 per cent in 1961 and over 61 per cent in 1966. The percentage of dry buffaloes increased even faster—from 42.9 to 46.5 during 1945-61 and over 47 per cent during 1966. The problem of dry cattle has thus become more serious.

A cow yields on an average 187 kg. of milk per year during the lactation period. A buffalo yields a much larger quantity—499 kg. per year—of milk with a higher fat content. Substitution of cows by buffaloes for increasing milk supply is economical and this process has already begun. Weather conditions and availability of grazing land determine the proportion of cows and buffaloes in different regions. Even in the same State, buffaloes predominate in some districts and cows in others. In Uttar Pradesh, Andhra Pradesh, Madhya Pradesh, Gujarat and Maharashtra buffaloes are relatively more numerous. In Bihar, West Bengal, Tamil Nadu and other States the proportion of cows is larger.

Slaughter Stock : Beef eating among Hindus is prohibited by religion. Hence the demand for beef is low and it fetches relatively low price, with the result that mostly unserviceable cattle are slaughtered. Buffalo meat being coarse and disagreeable to the general taste of meat-eaters, the demand is low.

Distribution among States : Uttar Pradesh with 14.5 per cent of cattle and 21.8 per cent of buffaloes is at the top. With regard to cows and bullocks, Madhya Pradesh comes a close second with 14.3 per cent. Its position is fourth in respect of buffalo population. The second position with regard to buffallo goes to Andhra Pradesh. Maharashtra comes third with regard to the population of both cows and buffaloes. Rajasthan has 7.6 per cent of both cows and buffaloes. Punjab, while it possesses 8.5 per cent of buffaloes (males over three years being quite insignificant), has only 3.7 per cent of cows and bullocks, between cows and bullocks the latter predominate.

Variations in the number of cattle from State to State are due to climate, grazing facilities, and the area under fodder crops which determine to a great extent the quality of cattle and the carrying capacity of land. Agricultural development, introduction of irrigation, reclamation of land, etc., affect adversely the livestock as the land available for grazing is reduced and the cultivated area under fodder and feed crops does not go up correspondingly, resulting in the reduction of total livestock feed. Both from the viewpoint of quality and number, important states for livestocks are Rajasthan, Punjab, Uttar Pradesh, Madhya Pradesh and Andhra Pradesh.

As regards other animals, nearly 60 per cent of sheep are almost equally distributed in the three States of Rajasthan, Andhra Pradesh and Tamil Nadu. A little more than 50 per cent of the goats are found in Rajasthan, Maharashtra, Bihar and Uttar Pradesh, 65 per

cent of horses and ponies are in Uttar Pradesh, Madhya Pradesh and Maharashtra. Mules are mainly in Uttar Pradesh and Punjab, camels in Rajasthan and Punjab and donkeys in Uttar Pradesh, Rajasthan and Maharashtra.

Breeds and Breeding : One of the reasons for the low quality of cattle is unsatisfactory supply of breeding bulls. A bull with average health conditions can service 60 cows in a year. The number of cows per breeding bull was 77 in 1951 and increased to 119 in 1961. Regarding buffaloes, the situation was only slightly better; number of buffaloes per bull was 70 in 1951 and 59 in 1961.

There are only 25 well defined breeds of cattle and these are found only in certain parts of the country. These breeds account for less than 20 per cent of total cattle. The pure breeds are mostly indigenous and are preserved by communities of cattle-breeders known as *ahirs*, *rabaris*, etc. The traditional cattle-breeders are now facing a challenging situation. They are hemmed in by extension of cultivated areas and find their traditional source of fodder supply shrinking. Besides, they have to migrate during summer to places near river beds with perennial supply of green grass. These places are marshy and have no satisfactory arrangements for drinking water. On their way from their original location to places of fodder supply, the cattle have to face difficulty in shelter, water and feed conditions. The traditional breeders are, therefore, gradually becoming extinct.

Among well defined breeds, there are two broad divisions, those which may be described as dairy breeds and those that are purely for draught, though there is a good proportion which produce a fair quantity of milk as well as bullocks of average working efficiency. The well known milch breeds of cows are *Ahiwal*, *Sindhi* and *Gir* while *Amritmahal*, *Mangayam*, and *Kankrej* are breeds noted for producing good bullocks. The *Hariana* and *Tharparkar* are the best known dual purpose breeds of India. *Ongle* and even *Kankrej* can be described as dual purpose breeds.

The well known buffalo breeds are *Nili Rani and Murrah* from Punjab and Delhi and *Mehsana, Surti, Jaffarabadi* from Gujarat.

Cattle Prices : Cattle prices vary from place to place and breed to breed. In view of the large number of breeds and variations among them, their classification and gradation for market purposes is difficult. Besides, the standard of evaluation vary from buyer to buyer, occasionally being influenced by fancy for a specific colour and auspicious marks. The price differentials are, therefore, associated not only with age, sex, utility or type, but also with non-economic considerations. By and large, the price of a young animal upto the

age of 3 years is low as it is comparatively raw and untrained. Prices begin to appreciate between the 4th and 7th year in case of draught cattle and thereafter begin to decline. Recent data regarding prices are not available. However, at present the price of a good *Kankrej* pair of bullock would be about Rs. 1,500 (at age of 6 years). For non-descript breeds it may be as low as Rs. 400 (at age of 6 years).

In the case of dairy cattle, the price is directly proportional to milk yield and varies with the number of lactations. Usually a higher price is paid for a milch cow in her first and second lactation and for a buffalo in her third and fourth lactation.

Cattle prices also fluctuate from season to season, the reasons being different for draught and dairy cattle. For draught cattle, the prices rise at the commencement of agricultural operations when the demand for the plough bullock is at its maximum level. Supply predominates in the slack season due to fodder scarcity and the price falls. The period of commencement of the agricultural operations—especially *rabi* operations—varies from region to region and crop to crop. In wheat growing areas, the autumn prices would be slightly higher than those in spring ; and in cotton areas, prices would be higher in June than in November. In the case of dairy cattle, prices rise and fall depending upon the regularity of milk supplies. Prices of slaughter stock are generally low after January or February when the influx of unwanted animals from rural areas begins due to increased scarcity of fodder during these months.

Though buffaloes form only 38 per cent of the milch animals, they contribute 54 per cent to the total milk production compared to 42 per cent contributed by cows. This is explained by the fact that on an average, a buffalo yields 499.4 kg. of milk.

Animal Husbandry Development: The Third and subsequent Annual Plans attached considerable importance to animal husbandry. A new cattle breeding policy was evolved during this period. According to this policy, cross breeding would be undertaken in areas covered by Intensive Cattle Development (ICD) projects and in key village blocks that lie in the milk sheds of existing and proposed dairies. Pure breeding would be confined to outstanding indigenous breeds in well defined breeding tracts with a view to improving the quality of milch cattle. Simultaneous upgrading of indigenous cattle would be undertaken with recognised Indian breeds. Greater efforts would be made for the improvement of the productivity of buffaloes.

The introduction of ICD projects during the period 1961—69 represents a significant development. The programmes include improved methods of breeding, provision of feed and fodder and disease control. Earlier, the cattle development programmes, taken

up in small and scattered areas, could not make much impact on account of insufficient inputs, lack of tie-up with proper marketing and inadequate coverage of cattle population. The ICD project was conceived to rectify these short-comings.

Objectives and Targets : The approach to livestock development in the Fourth Plan is based on three major considerations. First, it is estimated that only about 12 per cent of the agricultural component of the Gross Domestic Product is accounted for by livestock production in India. The second consideration is nutritional. Compared with cereals, the demand for livestock products is more income elastic and it is likely to grow at a rate between 5.5 to 6.4 per cent per annum. The third major consideration is that animal husbandry offers considerable scope for diversification of the economy of the small farmer and the landless labourer.

In the light of these considerations, the Fourth Plan aims at increasing the supply of protective foods like milk, milk products, meat and eggs and at improving the output of certain animal products of commercial importance, such as wool, hides, skins, hair, bristles and bones. It is also one of the principal endeavours of the Plan to help ensure that animal husbandry programmes stengthen the economy of sub-marginal farmers and agricultural labour.

In setting up targets of livestock development, consideration has been given to the constraints that are still operating in this sector. The first major constraint concerns absence of a significant research break-through comparable to that in cereal crops. The second constraint concerns feed and fodder, while the third arises from the fact that a large percentage of the bovine population has to provide draught power for agriculture, thus leaving relatively limited scope for a milk oriented cattle breeding policy. There is also lack of sufficient integration between crop husbandry and livestock production with the result that these programmes do not adequately reinforce each other. Again, there is the limitation arising from an intense competition for land and water resources. An extremely small area is devoted to fodder cultivation and pasturage. Certain animals, particularly sheep, are reared by nomadic groups moving up and down the mountain ranges in the Himalayas or from arid to semi-arid tracts in the plains. In these circumstances, a continuous and consistent programme of extension and improvement of quality of animals becomes doubly difficult.

The public sector outlays are proposed to be supplemented from various institutional sources. The Agricultural Refinance Corporation (ARC) has already financed several poultry and dairy development schemes. It is expected that, in the coming years, the role of the ARC in this sector would be enlarged. Another significant

source of finance particularly for purchase of milch animals is co-operative credit. The All-India Rural Credit Review Committee had recommended that such credit should also be available to persons who carry on animal husbandry activities without undertaking crop husbandry. The measures are expected to increase the flow of co-operative credit and, in particular make it accessible to small farmers and landless labour for their poultry and dairy activities.

Cattle Breeding Policy : The main features of recent cattle breeding policy are :

(i) Selective breeding in the breeding tracts of established or recognized milch, dual purpose, or some important draught breeds of cattle.

(ii) Laying more emphasis on milk production in the breeding tracts of draught breeds or types of cattle and replacing the other existing draught breeds or types with dual purpose breeds.

(iii) Grading up with recognized dual purpose or dairy breed in areas where cattle do not conform to any specific type of breeds and are usually non-descript and of low productivity.

(iv) Cross breeding with exotic breeds in hilly areas and other places where there are facilities for the rearing and maintaining of high yielding milch cattle and urban areas and around industrial townships to ensure adequate supply of milk.

(v) Improvement of buffaloes by selective breeding in breeding tracts and grading up with recognized breeds in other areas where buffaloes have established themselves.

The main emphasis of the new cattle breeding policy is on cross breeding. 8.5 lakh animals were bred by artificial insemination and 1.75 lakhs by natural services during 1970-71. The rate of progress in this respect will, however, depend upon the degree of the farmers' acceptance of cross-bred humpless animals as working stock. While a measure of progress has already been achieved in cross breeding, certain technical problems in regard to exotic inheritance are yet to be finally resolved, so as to achieve a measure of stability in the desired characteristics.

Intensive Cattle Development Programmes : With the object of increasing milk production particularly in milk shed areas of large dairy plants, the establishment of Intensive Cattle Development (ICD) projects were started from 1964-65. Thirty-four ICD projects were established upto the end of 1968-69. During the Fourth Plan it is envisaged to set up 37 such projects. Ten projects were set up in 1969-70 and 6 more in 1970-71.

The availability of proven bulls is a pre-condition for the improvement of breeds. During 1970-71, 8.5 lakh animals were bred

by artificial insemination and 1.75 lakhs by natural services. 2.64 lakh castration and 63 lakh prophylactic vaccinations were performed. A beginning has been made with the progeny testing units. In the Fourth Plan, a Centrally sponsored scheme will provide for progeny testing units at 10 State 'farms. For cattle development, schemes in the Third Plan and the Annual Plans included breeding farms, bull rearing farms, *goshala* development, control of wild and stray cattle and organization of mass castration. These programmes will continue. Three central cattle breeding farms and eight bull rearing farms will be set up. Sire evaluation cells will be established in each State.

However, the ICD project has yet to make a significant progress. A conference of the project officers held in October 1970 made special mention of two difficulties *viz.* inadequacy of funds provided by the States and non-availability of adequate quantities of seeds of high yielding varieties of fodder.

Buffalo Development : The demand for the buffalo as a dairy animal has increased in recent years on account of the high yield and rich fat content of its milk. Of the eight well defined breeds of buffalo, the *Murrah* breed, which is the most popular among the high yielders, has adapted itself well all over the country. An important scheme, continued from the Second Plan relates to the salvage of *Murrah* buffalo calves from milk colonies for distribution all over the country. In the Fourth Plan, an All-India Co-ordinated Research Project on buffaloes is envisaged. The objective is to improve the production potential of buffaloes through assessment of vital characters, selection for high economic value and development of breeds with the help of different systems of breeding. Research is in progress for overcoming the reproductive failures among buffalo cows during summer months. Some causes have already been identified. Further research work is contemplated in the Fourth Plan.

Sheep and Goat Development : The clip of Indian sheep is generally of coarse quality and the bulk is classified as carpet wool. Wool and wool products such as carpets, blankets and druggets earn valuable foreign exchange. Considerable quantities of the indigenous wool are being utilized in the woollen manufacturing industries. There is also demand for raw wool in the export market. To improve the quality of wool from indigenous sheep, the development programme envisages cross breeding of local sheep with exotic fine wool varieties as well as upgrading with some of the important local breeds. To produce quality stud rams of important indigenous breeds of sheep and exotic breeds, the programme envisaged establishment of 8 large sheep breeding farms with a flock strain of 5,000 or more sheep, expansion and reorganization of 15 State sheep breeding farms, establishment of 5 new sheep breeding farms and 50

sheep and wool extension centres besides the expansion of 80 centres established during the Third Plan. A large central sector sheep breeding farm is being set up at Hissar with Australian assistance. Australia has already supplied 1,030 corriedle sheep as part of the foundation stock, besides providing the services of experts and agricultural equipment for land development. Import of fine wool breeds of sheep and mutton types is envisaged to popularize improved method of sheep shearing, wool grading and marketing on the basis of the quality. The programme is being taken up in 8 States with UNDP assistance. It is proposed to organize farms for *Pashmina*, Angora and dairy goods.

Poultry Development : With the growth of poultry as a commercial enterprise during the last decade, poultry farming has become lucrative. The Agricultural Refinance Corporation has already provided finance for poultry projects. A favourable atmosphere has been created for the growth of ancillary industries such as organized poultry feed, poultry equipment and sales organizations for eggs and dressed birds. Propagation of stock with high feed conversion efficiency is important for bringing down costs. It is proposed to take up a co-ordinated poultry breeding programme at three Central and ten State farms to evolve superior lines and to cross them in various combinations with a view to exploiting hybrid vigour. One hundred intensive egg and poultry production-*cum*-marketing centres will augment supplies. The State Governments have been asked to set up State level organizations in the co-operative and corporate sectors to take up marketing of eggs and poultry on modern and scientific lines.

Piggery Development : Development of piggery is becoming increasingly important. Pig breeders are being supplied improved pigs and technical know-how in piggery development blocks. In some areas, supply of balanced feed for pigs has also been taken up. In order to improve the economic condition of those who have adopted pig rearing as a traditional occupation, it is proposed to supply them breeding stock at subsidized rates. The bacon factory at Haringhatta will be provided additional facilities. Work would be completed in remaining three bacon factories and one pork processing plant. Four more plants are proposed to be set up in different States. To ensure regular supply of improved pigs, 10 piggery farms would be expanded and 25 new piggery development blocks would be set up.

Feed and Fodder Development : Increase in the productivity of livestock has been hampered by shortage of feed and fodder. Only about 4.5 per cent of the cultivated area is under fodder. This is

not capable of supporting more than a small fraction of the livestock population. Stress will be laid on developing feed and fodder resources under the ICD projects and key village blocks. In 1970-71, 10,874 quintals of good quality seeds of fodder crops and 234 lakh roots/steps of perennial grass were distributed for cultivation purposes. 51,659 fodder cultivation demonstrations were organized. For meeting emergent requirements, it is proposed to set up 5 fodder banks in suitable areas where the available grass production will be harvested and conserved. It is also proposed to popularize silage and hay making by organizing demonstration on cultivators' holdings in the milk sheds of dairy projects. Seven regional forage demonstration stations will be set up. Of these, three stations at Hissar, Kalyani and Ankleshwar have already started and one more station has been selected at Alamadhi (Tamil Nadu). Foundation seeds will be multiplied at 20 seed farms.

Livestock Marketing : Marketing of livestock and livestock products has not developed to the same extent as that of other agricultural commodities. Marketing activities have been confined to regulation of cattle markets and to some extent to the grading of livestock products. Improvement in the conditions of marketing is an immediate need and regulation of markets would be an important step in this context. It is proposed to establish a livestock marketing cell in the Directorate of Marketing and Inspection with the object of developing effective supervisory and advisory control over the grading schemes for livestock products. In addition to this, other schemes proposed are classification of raw hides, improvement in the collection, preparation and grading of material used for manufacture of animal casings and arrangement for grading of wool at producers' level.

Animal Health : Maximum production can be ensured only when animals are healthy and protected against diseases and parasites. It is proposed to set up 200 new hospitals, 1,000 veterinary dispensaries and 2,000 stockman centres and to provide 60 mobile dispensaries. The five hundred existing dispensaries will be converted into hospitals and 60 clinical and investigation laboratories established. In addition to the continuance of the rinderpest eradication campaign in the southern States and the follow up programme in others, the immunization programme against the disease will be intensified by establishing check-posts and creating an immune zone to a depth of about 20 kilometers at inter-state borders. It is proposed to augment the production of tissues culture vaccines against rinderpest and foot and mouth disease and cross-bred animals are more susceptible to these diseases than indigenous breeds. To prevent ingress of exotic diseases, an animal quarantine and certification service will be set up.

Research : The two Central research institutes namely, Indian Veterinary Research Institute (IVRI) Izatnagar, Uttar Pradesh, and the Central Sheep and Wool Research Institute, Avikanagar, Rajasthan, were transferred under the administrative control of the Indian Council of Agricultural Research in 1967. The existing research facilities at both the institutes are proposed to be strengthened and a new plant, Animal Virus Research Institute, would be set up. At IVRI, new divisions of epidemiology, veterinary public health, experimental medicine and surgery and livestock products technology are proposed to be set up. The work of these divisions will comprise investigations on the epidemiology of various important diseases and their control measures, study of safety, efficacy, viability and applicability of newly developed medicines under control conditions and systematic research to evolve better techniques of collection, processing, packaging and marketing of meat, meat-meal, bones, bone meal and animal casing.

Since consumption of animal products has been steadily rising, various types of microbial food poisoning are likely to present problems. The two main aspects of research proposed concern the diseases communicable from animal to man and *vice versa* and the problem of rendering animal products safe for human consumption. For the control of foot and mouth disease, a vaccine has already been developed. Further research on this disease will be intensified for developing a potent vaccine for pigs. Under a co-ordinated project, typing of foot and mouth disease viruses would be undertaken. A number of co-ordinated multi-disciplinary research projects are proposed to be taken up for producing better productive strains of different species of livestock through adoption of scientific methods of breeding, feeding, management and disease control. At the Central Sheep and Wool Research Institute and at its two regional stations near Kulu and Kodaikanal, research will be undertaken on sheep breeding, management, health and wool processing technology.

Dairying and Milk Supply : Dairy development was given considerable emphasis from the beginning of the First Five Year Plan. The main problem related to supply of milk to large cities under hygienic conditions supported by schemes of procurement from rural areas. The progress during the First Plan was quite encouraging in the sense that the provision of Rs. 7.81 crores made in the Plan was more or less fully utilized.

In the Second Plan, stress was laid on establishment of colonies of milch cattle in metropolitan cities on the Aarey pattern. The policy in the Third Plan was to develop dairy projects with emphasis on milk production in rural areas linked with plants for marketing

surplus milk in urban areas. It was envisaged that the supply and collection of milk would be undertaken by producers' co-operatives in rural areas and the processing and distribution of milk and manufacture of milk products would be organized through plants operated as far as possible on co-operative lines. During the period 1961—69, 22 liquid milk plants and 4 milk product factories had been commissioned and brought in operation.

On the eve of the Fourth Plan, the total number of dairy plants in operation was 91, comprising 47 liquid milk plants, 7 milk product factories and 37 pilot milk schemes. Of these, 53 plants are in the public sector, while the rest in the co-operative sector. Most of them are operating at a loss on account of various reasons. In some cases, there was undue time-lag between the initiation and the commissioning of the project due to unavoidable circumstances and this added to the capital cost. Many plants have taken a long time to develop the operation to their full installed capacity. While some efforts to introduce balancing plants have been made, the inherent problem of fluctuation in milk supply between the flush and the lean season continues.

The programme has made further advance during 1970-71. The average output of milk of all the plants increased to 22.50 lakh litres a day as against 20.00 lakh litres in the preceding year, representing an increase of about 12.5 per cent. Seven liquid milk plants at Vishakhapatnam (Andhra Pradesh), Ranchi (Bihar), Kottayam (Kerala), Gwalior (Madhya Pradesh), Gulbarga (Karnataka), Mathura and Gorakhpur (Uttar Pradesh) were commissioned during the year. Besides, 9 small units started functioning at Burhanpur, Bilaspur, Khandwa, Katni, Raipur, Ratlam, Rewa, Sagar and Ujjain in Madhya Pradesh. Two large sized milk product factories were commissioned at Moradabad (Uttar Pradesh) and Jind (Haryana), the former with the assistance under the Third Line Danish Credit and the latter under the Yugoslav Credit. The total number of dairy plants in operation increased to 106 units, comprising 60 liquid milk plants, 7 milk product factories, 3 creameries and 36 pilot milk schemes as against 96 units comprising 53 liquid milk plants, 5 milk product factories, 3 creameries and 35 pilot milk schemes.

In the preceding year, in addition, 28 dairy projects, including development of pilot milk schemes into full-fledged units, were in various stages of implementation.

Most of the large sized dairy plants, including the Anand-Mehsana dairy complex in the co-operative sector and the Hyderabad-Vijaywada dairy complex in the public sector have shown substantial improvement in the procurement of milk over the earlier years. The plants at Ahmadabad, Agra, Aligarh, Baroda, Calicut, Chandigarh,

Delhi, Hyderabad, Kanya Kumari, Mehsana, Trivandrum and Vijayawada exceeded their installed capacities in respect of output. The overall increase in the procurement of milk could be attributed primarily to the adoption of better procurement and pricing policies by the project authorities.

In the field of milk products manufacture, there has been appreciable improvement. The country is now self-sufficient in these products, except milk powder which has to be imported to offset the seasonal shortfall in the milk production and to maintain the level of milk distribution to the consuming public in the major cities/towns. The milk product plants at Anand, Mehsana, Amritsar, Jind, Moradabad, Rajkot and Vijayawada increased their output to the level of about 45 tonnes of milk powder (including infant milk food) per day as against 40 tonnes per day manufactured in the preceding year. Of the milk products, the quantity of table butter and ghee manufactured was around 35 tonnes per day as against 30 tonnes in the previous year. There was good progress in the establishment of a composite milk plant at Barauni (Bihar) for which the equipment has been procured under the Swedish Credit Programme. Civil works of the project are in progress. At the Miraj composite milk plant, the erection of works have been taken up for the completion of the second phase of the project aimed at manufacturing milk products.

In the field of dairy equipment manufacture, the country has become almost self-sufficient. All equipment, except certain items of higher capacity and a few specialized and sophisticated items, required for the establishment of dairy plants, are now being manufactured in the country. This has enabled the country to save considerable foreign exchange.

Objectives and Outlays : As some of the existing dairy projects are operating at a loss, one of the principal tasks in the Fourth Plan is to take corrective measures. This will include changes in the milk pricing policy and introduction of modern management practices. The desirability of changing the management of public sector projects from departmental to corporate form will have to be pursued. It will also be necessary to establish a direct link between the small producers and the public sector milk plants through co-operative organizations. Dairy projects will need to be encouraged to take up extension work under their own auspices. At present, a number of dairy projects balance their operations by using imported milk powder. A phased programme is intended to be drawn up to increase production in the milk-shed areas and gradually eliminate dependence on imported milk powder.

The organized sector of the dairy industry will be extended to

smaller towns with emphasis on milk production in the rural areas. Measures will be taken to ensure that dairy projects are economically viable and, as far as possible, organized in the co-operative sector.

The financing of dairy development will be based on three principal sources, namely, Plan outlays, institutional finance and counterpart funds generated by the sale of commodity gifts under the World Food Programme. As far as institutional sources are concerned, the Agricultural Refinance Corporation has already entered the field and financed one dairy project. Further suitable schemes will have to be formulated for financing by the ARC. Briefly, it is expected that funds of the order of nearly Rs. 95.40 crores will be generated and will form part of the Plan outlays. On this basis, the total outlay under the Plan will be of the order of Rs. 138.97 crores.

In the Fourth Plan, first priority will be the completion of the 33 dairy schemes which spill over from the earlier period. In addition, organized dairy industry will be extended by taking up 24 new schemes in towns with a population of about 50,000. Furthermore, four milk product factories are proposed to be established. In addition, 64 rural dairy centres will be organized in areas with a population of less than 50,000 with a view to providing chilling and marketing facilities in isolated pockets of milk production.

Project for Milk Marketing and Dairy Development : With the co-operation of the World Food Programme (WFP) the Ministry of Agriculture has formulated a project for stimulating milk marketing and dairy development in India. Under this project, the WFP will supply, free of cost, during the five-year period from 1970-71 to 1974-75, 126 thousand tonnes of skimmed milk powder and 42 thousand tonnes of butter oil, worth Rs. 41.90 crores at international prices. After recombination of the skimmed milk powder and butter oil into liquid milk at the public sector dairies at Bombay, Calcutta, Delhi and Madras, the milk will be sold and the sale proceeds estimated at Rs. 95.40 crores will be used for increasing milk processing facilities of the public sector dairies from one million litres at present to 2.75 million litres per day at the end of the five-year project period. The generated funds will also be used for increasing milk production and procurement in the ten neighbouring States and the Union Territory of Delhi. This will be achieved by the provision of technical inputs which will include production of ready mixed concentrates and green fodder, artificial insemination, veterinary services and medicines, calf rearing assistance, development of improved milch animals and organization of rural procurement of milk. The project will also provide for the resettlement of the city kept cattle and buffaloes in the adjacent rural areas.

For the implementation of this project, Government have set up an Indian Dairy Corporation with headquarters at Baroda. Upto the end of April 1971, the World Food Programme has supplied 9,299 tonnes of skimmed milk powder and 3,100 tonnes of butter oil against 10,500 tonnes of skimmed milk powder and 3,500 tonnes of butter oil expected from them during the period July 1970 to June 1971. Funds to the extent of Rs. 3.72 crores have been generated upto end of April 1971 against the anticipated investment of Rs. 7·81 crores during July 1970 to June 1971 (the first year of the Project). In order to meet the requirements of the first phase expansion programme of the public sector milk plants, estimated to cost Rs. 1.91 crores, the Indian Dairy Corporation has placed or are placing indents amounting to Rs. 1.8 crores, on UNICEF for the import of dairy processing equipment and components. Deliveries are expected to begin in June-July 1971. The balance of the amount is being made available from free foreign resources. The requirements of plant and machinery for the second phase estimated to cost Rs. 25.26 crores have been discussed with the indigenous manufacturers and D.G.T.D. and items of the value of Rs. 13.96 crores will be imported. A stockpile of scarce indigenous iron and steel material is being collected to facilitate indigenous production of the remaining dairy processing equipment of the value of Rs. 11.30 crores. State-wise and area-wise break-up of Rs. 95.40 crores expected to be generated from the sale of WFP commodities, have been worked out and communicated by the Corporation to the respective State Governments. They have been asked to formulate concrete projects within these allocations.

XVI. Fisheries

With a coastline of about 4.8 thousand kilometers and a continental shelf of more than 2.6 lakh square kilometers, India has a rich potential for a thriving fishing industry. There is hardly any month during which fishing activity has to be stopped altogether; fish of some type or the other is available during most parts of the year. India has also long stretches of inland watercourses in which fresh water fish breed.

With these vast acquatic resources, actual production of fish in the country is rather meagre. Although the industry provides employment for over a million persons, the total production of fish in the country from marine and inland fisheries was only 1,075 and 671 thousand tonnes respectively during 1970. India ranks tenth among the world's fish producing countries.

One of the major reasons for the tardy development of the fishery industry in India till recently was the lack of adequate market

demand. Nearly one-third of the total population does not habitually eat fish; fish eating is a religious taboo to them. The other two-thirds of the total population eats less fish, mainly due to low income. Per capita fish consumption amounted to only 3.5 kg. per year for the fish eating population. For the entire population, it averaged to 2.3 kg. per year. Even this small figure of Indian consumption is very unevenly distributed in the country. West Bengal, the leading consumer, takes 2.9 kg. per head while Punjab consumes only 0.4 kg. and Bihar less than 1 kg.

In most of the advanced countries, the level of fish consumption per capita per year is much higher. In U.K. it is 18 kg., in Denmark 10.5 kg., in Germany and France about 8 kg., in U.S.A. 7 kg. and in Italy and Switzerland 5 kg. and 3 kg. respectively. Even a small country like Sri Lanka —our southern neighbour—consumes as much as 16.4 kg. of fish per capita. Thus, increase in demand upto even a modest level of consumption would require a substantial increase in fish production.

It is estimated that of the animal food consumed by man, fish forms about 3 per cent of the total in the world though the percentage in some areas like Ireland, Newfoundland, parts of Norway, and Japan is comparatively much higher.

Poor techniques of production and negligence by the State for a long time accounted for low production. The continental shelf extend over 100 fathoms on the 4,300 kilometres of cast giving 2.9 lakhs square km. However, because of elementary and crude implements and small and primitive boats of canoe types used for fishing, only a small portion of the large continental shelf has, as yet, been exploited. Of the innumerable esturine sources, perennial rivers, irrigation works and confined waters of tanks, ponds, etc., very few are used for pisciculture due to customs of the people and a low social status, of the fishing occupation. Mostly, illiterate people equipped with traditional skill are engaged in fishing. Besides, there are only a few good harbours. Also there is hardly any facility for refrigeration, and curing yards have been established only recently. This makes transportation difficult and marketing expensive.

Fishing is under the administrative jurisdiction of the State Governments. Till 1958, the Fishing Department was part of the Revenue Department and as such it paid scant attention to the development of fishing. The State Government was not willing to spend and invest in development of fishing out of its other revenues. Deep sea fishing has been recently taken up with the mechanization of some of the boats.

Production of Fish : Our land and sea resources yield, at present, only a fraction of what they could if exploited on modern lines.

Although as many as 1,500 kinds of fish are known to exist in India, only a few types are caught in appreciable quantities, and so far we have not been able to tap more than 5 to 6 per cent of our entire fishable marine area. In the past, nearly one-third of the total catch was wasted due to the shortage of ice, necessary for preserving fish. From the year 1950, statistics on the catch of marine fisheries have been developed by the Central Marine Fisheries Research Station, Mandapam. It has now a network of selected observation centres spread on the East and West Coast of India which form the main sources of marine fish supply.

Important sea fishing areas are confined to the coastal waters extending from 8 to 16 kilometres from the shore of Gujarat, Kanara, Malabar Coast, Tamil Nadu, Coromandal Coast, and the Gulf of Mannar. Of all these, Tamil Nadu with the best organized fisheries department holds a highly creditable record. Its 2,800 kilometres coastline is surrounded by over 1 lakh square kilometres of shallow sea water. The Tamil Nadu Government was the first to take interest in the industry about three decades back. A wide range of activities connected with this industry from the manufacture of 'Fish Guano' manure to pearl buttons and bangles are seen in the State.

Of the total production of marine fish, as much as 35 per cent is produced in Kerala alone and adding three other important South Indian States—Andhra Pradesh, Tamil Nadu and Karnataka, nearly two-third of total production comes from this region. Another 30 per cent is produced in the western region of Gujarat, Maharashtra, Goa and Laccadive Islands. The only other State which is of some significance in the east is West Bengal which during 1970 produced over 31 million tonnes of marine fish. As regards inland fish, here again the southern States of Andhra Pradesh, Tamil Nadu, Karnataka and Kerala put together account for nearly one-half of the total production. The share of Maharashtra and Gujarat in the west is quite negligible but the eastern State of West Bengal and Uttar Pradesh in the north contribute substantially to this total production.

The bulk of marine fish production comes from the inshore areas in which non-powered as well as small powered craft operate. The strategy of development has been to intensify the fishing effort with powered craft in this sector while developing the infra-structure for fishing in off-shore and deep sea areas. About 730 mechanized boats were programmed for introduction in the various maritime States during the year 1970-71 to add to the fleet of 8,230 powered boats already in operation. Integrated projects covering boat building, fishing and marketing have been formulated in several maritime States. To assist the development of mechanized fishing, harbour facilities are being provided at several points round the coast. For

the development of deep sea fishing efforts have been intensified on location and charting of fishing grounds, provision of larger harbours and training of personnel. Measures have also been taken to ensure availability of deep sea fishing vessels through indigenous construction as well as by limited imports. In addition to larger harbours designed to handle deep sea fishing as well as mechanized boats, harbour facilities estimated to cost nearly Rs. 46 lakhs are being provided at 40 sites spread over several States.

Fishing Harbours : The work of construction of deep sea fishing harbour at Sasoon Docks, Bombay, estimated to cost Rs. 4.74 crores commenced during the year 1970. Work is now continuing on the construction of deep sea fishing harbours at Tuticorin in Tamil Nadu, Vishinjam in Kerala and Karwar in Karnataka, which are estimated to cost Rs. 208 lakhs, Rs. 173 lakhs and 24.86 lakhs respectively. A fishing harbour at Port Blair, at an estimated cost of Rs 50 lakhs, which will handle deep sea fishing vessels and mechanized boats, has been sanctioned during the year. The construction of a harbour costing about Rs. 151 lakhs which will provide facilities for 15 large deep sea fishing vessels at Roychowk on the Hooghly has also been approved. A project report for a large deep sea fishing harbour at Cochin has been prepared and plans and estimates are under preparation for fishing harbours at other major ports. The UNDP Fishing harbour pre-investment survey project is continuing investigations of suitable harbour sites and preparation of designs and estimates. The project has conducted reconnaissance surveys of 16 sites in Andhra Pradesh, 6 sites in Karnataka, 5 sites in Maharashtra, 5 sites in Kerala and 7 sites in Orissa. The project completed economic studies and detailed engineering surveys and soil mechanics investigations at Malpe, Honavar, Ratnagiri, Kakinada, Nizampatnam and Narsapur. Plans and estimates were drawn up by the project for the first three harbours.

Fishing Vessels : Orders were placed by the Government of India and State Governments between August 1968 and February 1969 with the Indian Ship Building Yards for construction of 40 deep sea fishing vessels of 17.5 meters overall length. In order to encourage the use of indigenously constructed vessels, a scheme has been introduced under which indigenously constructed steel deep sea fishing vessels will be subsidized upto a limit of 27.5 per cent of the c.i.f. cost of an equivalent imported vessel. During the year, a few orders were placed by the fishing industry on foreign yards for the deep sea fishing vessels under a scheme of limited import. The fisheries industry will receive a big boost when India's first fibreglass reinforced plastic boat fabricating factory is commissioned in Mangalore.

Indo-Norwegian Project : According the Indo-Norwegian Project entered between the Governments of Norway and India, the Norwegian team provides expert assistance in various fields of fishery technology, engineering, navigation and fish processing and counterpart technical personnel were trained under their guidance. The activities under the project include deep sea exploratory fishing, demonstration of modern technology with special reference to processing and marketing and training of personnel. Encouraged by the results of the deep sea trawling operations carried out on the South-West Coast, exploratory trawling for deep sea prawn and lobster was extended to the East Coast. The surveys indicated occurrence of the same species of deep sea lobster already located on the West Coast, in appreciable quantities at several places in the Gulf of Mannar along the 125 fathom belt. Several species of deep sea shrimps were also located along the 150 to 200 fathom zone. Thus, a fishery for deep sea lobster and shrimp has become available for commercial exploitation along the South-West as well as the South-East Coast. Purse-seining operations were initiated during the year in the Laccadive Sea and it is proposed to carry out further operations with the help of a new vessel to be acquired shortly with Norwegian aid. Sanction has been issued for staff and equipment for two modern fish stalls at Coimbatore and Bangalore under a scheme designed to demonstrate and promote internal marketing of marine fish under hygeinic conditions.

Preservation and Transport: For proper preservation and quick transport of fish from landing areas to interior markets, one ice plant, two cold storages, one freezing plant and one frozen storage were commissioned under State programmes. In addition, work was in progress under these programmes for erection of 28 ice plants, 24 cold storages, 7 freezing plants and 8 frozen storages. Besides this 3 refrigerated rail vans for transport of fish are under construction.

Types of Fish : For a vast country like India, physical and biological conditions under which fisheries exist are varied. This gives a large variety of fish. They have local popular names. Matching of these names with their English equivalents is not possible in all cases. The first comprehensive and systematic classification of fishes on an all-India scale was made in 1876—1889. Subsequently, some of the State Departments attempted to rename some varieties. However, Day's classification is still common and is widely accepted.

There are 14 major groups of commercial fishes with several types included in each of them. These groups are (i) Elasmobranchs which included sharks, saw fish, skates and rays (ii) Eels (both marine and

fresh water), (iii) Cat-fishes (marine and fresh water), (iv) Bombay-duck, (v) Feather backs, (vi) Mackerels and the Perches, (vii) Silver Bellies (viii) Pomfrets, (ix) Elat fish, (x) Mullets, (xi) Indian Salmon, (xii) Jew fishes, (xiii) Live fishes other than Cat-fishes, and (xiv) Carps. Of these, Carps and Live-fishes other than Cat-fishes are found in rivers, tanks, etc. all over India. Indian Salmons (Limn especially) are found in Saurashtra, Mullets only in large rivers, Pompfrets in gulf of Cambay, and in certain areas of Coromondal Coast, Feather-backs in fresh and brackish water, and Bombay-duck off Bombay coast. Sharks, Herrings and Skates are found mostly in the Bay of Bengal, and Marine Eels again on Bombay coast. Mackerels are mostly available in Madras and Kerala coastal areas and Silver-bellies on South-West coast of India. Prawns are found over wider areas of Kerala, Kutch, Bombay and Bengal, but lobsters in the same group (of Carps) are found in West Bengal areas.

In the various types of marine fish, quantitatively, the major share was contributed by (i) Mackerels and Perches, (ii) Crustaceans, (iii) Herrings and Anchovies, (iv) Bombay-duck, and (v) Jew fish. During 1950—59, the production of Bombay duck increased several fold and that of prawns, shrimps and other crustacean and Cat-fish nearly doubled after the Second Plan. Production of the more popular but quantitatively less important varieties like Pomfrets has registered substantial increases. The data regarding the output of various types of fresh water fishes are not available.

Disposition of Catch : Data on the disposition of nominal catch in India are available over the years. This gives some idea of the quantities marketed fresh, cured, canned, used for miscellaneous purposes and offals for reduction, etc. Of the total production of 1,746 thousand tonnes during 1970 as such as 1,170.5 thousand tonnes was marketed fresh. Of the balance, total quantity cured was 354.3 thousand tonnes. Curing is done sun-dried or salted. During the year 1970, the quantity of sun-dried fish was 202.2 thousand tonnes and salted was 152.1 thousand tonnes. Besides the small quantities canned put for miscellaneous use, 95.8 thousand tonnes were used for reduction and 80.2 thousand tonnes for freezing.

Utilization of fish for food and other purposes varies from year to year. Popular prejudices against certain types of fish depend on appearance. Since shoaling conditions would vary every year, quality of produce also varies. In maritime States, fresh water fishes are consumed almost fresh but small quantities of marine fish are sun-dried. Fresh water fishes are sun-dried on a commercial scale in Assam and West Bengal. In coastal areas, sun-dried fish is consumed only during monsoon. Of fresh fish, sharks

are in good demand in Tamil Nadu and southern States, but poor demand in Bombay city.

On the whole, Pomfrets, seer fish, Mullets and Indian Salmons are in good demand because of their clean appearance, firm flesh, small bones and good taste. A peculiarity about Indian demand is that those used to fresh water fish do not eat sea fish and *vice versa*. In India, fish is eaten as fish curry with rice and *chappatis* or is fried in fat (ghee or oil) along with other vegetables. Sardines, mackerels, seer fishes, eel fishes, Pomfrets, sharks, prawns, etc., are salted. Mackerels and seer fish are pickled.

Imports and Exports : Imports of fish have fallen in recent years to a negligible figure of 29 tonnes during 1969-70. They were actually only 4 tonnes during 1966-67 as against 31.5 thousand tonnes during 1962-63. Small quantities being imported now consist of fish products and fish preparations in containers. Even earlier, imports of this type were not very large. The major type of fish imported earlier was fresh, chilled or frozen type as well as salted, dried or smoked.

Fish and fish products are making a significant contribution to our foreign exchange earnings. But even now India's share of the world trade in marine products is barely 2 per cent. In view of the growing world demand on the one hand and the large potential available in India for augmenting supplies on the other, the scope for increased exports of fishery products from India appears to be immense. In the last few years, there has been a steady increase in the export earnings from fish and fish products. India exported 15.5 thousand tonnes of fish and fish products valued at Rs. 3.91 crores in 1961-62. The exports went up to 29.5 thousand tonnes with a foreign exchange earning of Rs. 30.83 crores in 1969-70, the highest record so far (Table XXXVIII).

Ninety per cent of the country's exports consist of fresh, chilled, frozen and canned fish and the principal export varieties are prawn, shrimp, frog legs and lobsters. In 1968-69, export of prawn and shrimp fetched Rs. 19.70 crores out of the total foreign exchange earnings of Rs. 22.17 crores from fish and fish products. The U.S.A. and Japan have emerged as the biggest importers of Indian prawn and shrimp over the last few years. France and Belgium are the two other potential markets. There is an increasing demand for shrimp in the U.S.A., Japan and Europe and India can hope to benefit by it only if she is able to meet the product requirements.

The demand for prawn in Japan is to be increasing at a rate of 17 to 18 per cent per annum and Japan is, therefore, keen on developing new sources of supply. India is a very promising source of supply as she is close to Japan after Thailand. The Japanese market for

prawn is more sophisticated than that of the U.S.A. and only large sized prawns are imported by that country. Six new companies are now setting up prawn processing plants at Visakhapatnam. This is expected to give a big boost to their exports to Japan so as to reach the Fourth Plan target of Rs. 40 crores worth of fishery exports.

In recent years, India has emerged as one of the leading suppliers of frozen frog legs and lobster tails in the world market. In 1961-62, there was hardly any export of these items. In 1968-69, India exported frozen frog legs valued at Rs. 57 lakhs and lobster tails valued at Rs. 84 lakhs. The exports are made mainly to the U.S.A., France, Belgium, Netherlands and West Germany. There is a keen demand and the export of this item can be increased substantially if the supplies to the processing factories are stepped up. Frogs are available in swampy and low lying areas in Kerala, Tamil Nadu, Karnataka, Maharashtra and Andhra Pradesh. They are caught at night with the aid of bright petromax lanterns and delivered in the morning to the processing factories where they are butchered and quickly frozen for export. Only the pair of hind legs of the frogs are used for freezing and are graded according to the size and colour.

Lobster is another highly favoured item of sea food in foreign countries, particularly in the U.S.A. which is the biggest market. The increased demand from abroad for Indian lobsters has given a fillip to this hitherto less exploited fishery. Each kilogram of lobsters fetches Rs. 9 to Rs. 11 in India and when marketed overseas as frozen tail, gets Rs. 31 to Rs. 33. While the industry started with a modest export earning of Rs. 2 lakhs or so in 1962, the export earnings went up to Rs. 12 lakhs in 1965-66 to Rs. 22 lakhs in 1966-67 and Rs. 36 lakhs in 1967-68. The foreign exchange earnings from this source shot up to Rs. 84 lakhs in 1968-69.

Progress under the Plans : Under the Five-Year Plans important programmes relating to exploitation of new fishing grounds, mechanization of fishing boats, improvement of craft and gear, training of fisheries officers and fisheries operators, improvement in landing and berthing facilities, refrigerated transport and fishing requisites, and organizing of processing and canning were undertaken. Investigations were also made at the Central Fisheries Technological Research Institute at Cochin with a view to improving designs of fishing crafts and fishing gear. In addition to the sea fishing station at Bombay, five similar stations were established for operating modern fishing grounds, determining fishing seasons and training of personnel. Two of these stations have, however, been closed temporarily. Two training institutions, one for officers and the other for co-operatives, were set up at Bombay and Ernakulum

respectively. A number of boat-building yards have been established under the coastal States.

About three thousand boats were mechanized during the first three Five-Year Plans and ten fishing harbours were taken up for development. The development of fishing harbours at minor ports was also taken up as Centrally sponsored scheme under the special progrmme during the last years of the Third Plan. Nine refrigerated rail vans were introduced on an experimental basis for the transport of fresh fish from producing centres along the coast to places like Calcutta and Delhi. The possibilities of manufacturing refrigerated and insulated trucks for the transport of frozen and fresh fish within the country are being explored. Proposals for manufacturing of marine diesel engines within the country with foreign collaboration are also under consideration. Efforts are being made to import the minimum number of built-in trucks initially, but later on only refrigeration units will be imported and the State Governments will be asked to build the boats and fit on to Indian chasis.

For the development of inland fishing, considerable progress has been made by raising fish seed production by artificial means and locating additional centres through natural resources. Attention is also being given to the development of reservoir for fishing, stocking, and culture of fish. As a result of these measures, the total production of fish (inland and marine) is estimated to have been increased to about 17.46 lakh tonnes by the end of 1970 as compared to 9.52 lakh tonnes in 1951. The total fish potential of India as against this has been estimated over 10 million tonnes both marine and inland.

Fish being an important export item, efforts are also being made to increase the production of those species which have a big foreign demand. The Ministry of Foreign Trade has fixed an export target of Rs. 48 crores for the Fourth Five Year Plan against Rs. 18 crores during 1967-68. To achieve the production targets under the Plan, an outlay of Rs. 83.57 crores has been fixed.

With regard to marine fisheries, it is important to note that nearly three-fourth of the country's total catch comes from the West Coast which abounds in prawns, sardines, Bombay duck, Mackerel, etc. It has been estimated that the annual catch amounts to about 800 kg. per fisherman and 8,000 kg. per boat engaged in the industry. Efforts are now being directed towards organizing supplies of fisheries requisites through fishermen's co-operative socities and the introduction of machanized vessels on a large scale.

The Central Institute of Fisheries Education, Bombay, established in 1961 with the object of training fishery officers at the district level, had so far trained 183 candidates. The institute is now regarded as

TABLE XXXVII

Fish Landings In India—Marine And Inland

('000 Metric Tonnes)

States/ Union Territories	All—India			Southern States			Western States			Eastern States			Total
				Andhra Pradesh, Tamil Nadu, and Karnataka			Gujarat, Maharashtra Goa and Laccadives			West Bengal, Andaman and Pondicherry			
Year	Marine	Inland	Total	Marine	Inland	Total	Marine	Inland	Total	Marine	Inland	Total	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1961	684	277	861	195	135	330	205	10	215	9***	56***	65	72
1962	644	330	974	215	164	379	221	11	232	8***	34***	42	8
1963	655	390	1,045	214	217	431	227	11	238	11	34***	45	—
1964	860	460	1,320	307	260	567	224	12	236	11	103***	114	—
1965	924	507	1,331	242	226	468	229	22	251	20	127***	147	—
1966	890	477	1,367	280	205	485	240	24	264	23**	127	150	—
1967	863	537	1,400	250	228	478	222	24	246	28**	150	178	—
1968	904	622	1,526	294	240	534	230	25	255	39**	212	251	—
1969	912	693	1,605	305	275	580	280	24	304	34**	233	267	—
1970	1,075	671	1,746	336	250*	586	300	26	326	43**	228	271	—

* Included in West Bengal.

** Combined with Haryana

*** Includes Orissa

TABLE XXXVIII

Export of Fish and Fish Preparations from India

Quantity—Metric Tonnes
Value—'000 Rupees

Commodity	1960-61		1961-62		1962-63		1963-64		1964-65	
	Quantity	*Value*	*Quantity*	*Value*	*Quantity*	*Value*	*Quantity*	*Value*	*Quantity*	*Value*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. Fish fresh, chilled or frozen	1,093	761	245	250	348	191	35	112	21	66
2. Fish salted, dried or smoked	13,500	28,245	7,810	12,110	3,298	7,878	9,878	18,848	9,591	17,536
3. Crustacean & Moulscs fresh, chilled, frozen, salted, dried or cooked.	4,553	14,661	6,433	21,632	5,695	23,820	7,340	31,367	9,275	43,919
4. Fish products & fish preparations in air-tight containers	388	2,323	715	4,948	1,513	8,885	1,137	6,763	966	6,741
5. Fish products & fish preparations not in air-tight containers	380	197	502	184	8	38	8	46	3	15
Total	19,914	46,187	15,705	39,124	10,862	40,812	18,398	57,136	19,856	68,277

TABLE XXXVIII (*Contd.*)

Export of Fish and Fish Preparations from India

Commodity	*1965-66*		*1966-67*		*1967-68*		*1968-69*		*1969-70*	
	Quantity	*Value*	*Quantity*	*Value*	*Quantity*	*Value*	*Quantity*	*Value*	*Quantity*	*Value*
(1)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
1. Fish fresh, chilled or frozen	68	115	88	228	82	243	121	664	135	1,062
2. Fish salted, dried or smoked	4,628	6,718	7,049	16,319	4,569	12,164	5,880	15,402	5,678	15,315
3. Crustacean & Molluscs fresh, chilled, forzen, salted, dried or cooked	8,624	49,308	11,069	120,138	13,275	140,160	16,469	181,821	22,090	269,476
4. Fish products & fish preparations in air-tight containers	21	139	1,945	27,216	1,982	26,936	2,054	23,860	1,577	22,464
5. Fish products & fish preparations not in air-tight containers	1,148	9,634								
Total	14,489	65,914	20,151	163,901	19,908	179,503	24,524	221,747	29,480	308,317

the highest educational institute in fisheries in the country and meets to some extent the needs for similar training from neighbouring countries. The inland fisheries training course at Barrackpore and inland fishery co-operative training courses at the Regional Training Centres at Agra and Hyderabad provide training to fishery officers at intermediate and operative levels respectively. Thirty-nine candidates at the Barrackpore unit and seventy-seven candidates at the Regional Training Centres at Agra and Hyderabad were admitted for the courses commencing in 1970.

The Central Institute of Fisheries Operatives at Cochin and Madras provide the training programmes for fishing second-hands, engine drivers, boat-building foremen, shore mechanics and radio-telephone operators.

XVII. Forest Resources

Forests are an important resource of a country. They help to maintain hydraulic cycle through their moderating influence on climate and by attracting rain clouds. They prevent soil erosion by controlling the fury of floods and breaking wind speeds. They help to bind the soil by their foliage. They can be used as a belt to prevent the march of deserts.

In India, the two evils of unplanned land use and soil erosion have caused great damage. Of this, the most devastating effects are seen on the friable soils of Hoshiarpur and Kangra Siwaliks, in Punjab. It is said that when Emperor Jahangir built the castle of Nurpur for Nur Jahan, in the 17th century, the forest was so thick that a bird could hardly spread its wings. Today, it is a denuded hilly area with nothing more than tufts of grass and thorny bushes. This destruction took place in less than 300 years.

Dense forests, which covered the outer Himalayas, have also been reduced to negligible proportions. The same has happened in the Etawah and Agra regions of Uttar Pradesh, Chhota Nagpur, plateau in Bihar and the Nilgiris in the south. There is evidence to the effect that the area around Mathura (Uttar Pradesh) was having regular forests during the Mahabharata age. The destruction of these forests later has enabled the Rajasthan desert to encroach upon South-West Uttar Pradesh, creating a serious problem.

India is still rich in forest wealth. Forest products are varied. Firewood obtained from the forests is the main fuel used in the country because gas and electricity are of little importance as domestic fuel. The farmer uses wood for the manufacture of his agricultural implements and in making houses. His cattle graze in

the forest. Cattle deriving their subsistence by grazing in the forests number as much as 30 to 35 millions.

Forests supply timber for buildings and wood for furniture. Wood is also used for railway sleppers and for the manufacture of railway coaches, bus and truck bodies and many other articles of every-day use.

A large number of industries depend upon the products of forests. Bamboo, lac, gum, rosin, tanning materials, medicinal herbs and *kattha* (catechu) are forest products. Match industry, paper pulp including viscose pulp, plywood, sandal wood oil industry, turpentine oil industry, etc., depend solely upon the raw materials obtained from forests. All this provides employment for a large number of people in a variety of jobs, *e.g.*, wood cutting, sawing, carting and as carriers, craftsmen, carpenters, etc., working in and near the forests in addition to people engaged in industries utilizing raw products of the forests.

In so far as employment is concerned, forestry activities are, by and lage, labour intensive. What is more, these activities are practised in such areas where opportunities of employment from other industries are very few.

In India, because of the low per capita income level, the demand for forest products has remained restricted. In contrast, the demand for field crops has been persistently high and has tended to increase rapidly with the growth in population. Field crops, thus compete with forest products for land use. Land under crops expanded rather rapidly during the last three or four decades, resulting in the depletion of forest areas. The relatively low demand for forest products for a long time led to the neglect of forests both by the State and private owners. In some regions, depletion of forest areas and the neglect of forests have disturbed nature's hydraulic cycle, leading to the spread of desert or semi-desert conditions. During the last one and half decade, demand for forest products has been increasing with the expansion of the rayon, paper and match industries. With the expansion of irrigation, afforestation of catchment areas has become a necessity. Marching deserts from the west have also emphasized the need for expansion of forest areas. Government is now seriously engaged in expanding forests and developing forest resources. Sizeable financial allocations have been made in the developmental plans for this purpose.

Forest Area : In India, nearly 50 per cent of the total land area forms the watersheds of 187 river valley projects expected to be completed by 1973-74. Forests in these watersheds will be an important factor in prolonging the usefulness of the projects. Moreover, forests are the main basis of the country's industrial development.

With various uses of forests, it is difficult to establish a set criterion to determine the minimum area necessary under forest in each of the State. For maintaining the hydraulic cycle, it has been suggested that there should be a minimum of 20 per cent of the area under forests. The highly uneven distribution of forest area in different regions leads to extreme variations in climate and rainfall. The total area under broad-leaved forests taken together was 7,07,000 sq. kilometres during 1964-65. The total area under forest in India during 1964-65 was 753,000 sq. kilometres constituting roughly 23.0 per cent of total geographical area in the country. The distribution of the forest area as between different States has been rather uneven. While Madhya Pradesh accounts for as much as 172 thousand sq. kilometres (22.8 per cent), Orissa 68,200 sq. kilometres, (9.1 per cent), Maharashtra 67,100 sq. kilometres (8.9 per cent), Andhra Pradesh 64,500 sq. kilometres (8.6 per cent), a State like Punjab had only 17,900 sq. kilometres (2.4 per cent) of the area under forests (Appendix). About 62 per cent of the forest area in the country is concentrated in seven States—Assam, Madhya Pradesh, Uttar Pradesh, Bihar, Andhra Pradesh, Maharashtra and Gujarat.

Area under forests as a percentage of the total land was low in Punjab, Rajasthan, Uttar Pradesh, West Bengal, and Jammu and Kashmir. In States, such as Bihar, Karnataka, Assam, Andhra Pradesh, Kerala, Madhya Pradesh and Orissa, the proportion of forest area to total land was near or above the minimum as indicated above. In Himachal Pradesh, Madhya Pradesh, Orissa, Tripura and Andman and Nicobar Islands, forests formed over 35 per cent of the total land area, the proportion being more than 60 per cent in the last two regions. Total forest area in each of the State has been classified according to :

1. Type of forests—merchantable and unprofitable or inaccessible.
2. Legal status—reserved, protected and unclassed.
3. Composition—coniferous, sal, teak and miscellaneous.
4. Ownership—Forest Department, civil authorities, corporate bodies and private individuals.

Of the total forest area, as much as 590,000 sq. kilometres (78 3 per cent) is merchantable. Unprofitable or inaccessible forests are mainly located in Maharashtra (28,800 sq. kilometres), Madhya Pradesh (27.5 thousand sq. kilometres), Uttar Pradesh (14,900 sq. kilometres), Punjab (10,900 sq. kilometres) and Jammu and Kashmir (11,900 sq. kilometres).

Most of the forests in India are broad-leaved or non-coniferous in composition. On the hilly part of the country generally coniferous forests grow.

Forest Management : Most of the forest areas are State-managed. In the year 1949-50, the State managed about 77.2 per cent of the total forest area, the remaining 22.8 per cent being owned or managed by corporate bodies or individual owners, the former accounting for 0.3 per cent and the latter for 22.5 per cent of the total forest areas. In 1957-58, the State's share increased to 96.9 per cent subsequent to abolition of intermediate tenures of land and the shares of corporate bodies and individuals declined to 0.1 and 3 per cent respectively. With the nationalization of private forests in Kerala in March 1971, more than 3,000 sq. kilometres of area has come under State control. Kerala forests, which occupy some 27 per cent of the geographical area, are the greatest assets of the State.

Most of the State-owned forests are managed by the Chief Conservator of forests who is responsible for the administration and management of forests. He is assisted by a cadre of trained forest officers. They prepare working plans and conduct silviculture experiments. State Forest Departments seek the advice of the Inspector of Forests, who is attached to the Ministry of Agriculture, Government of India.

Small patches of woodlands scattered over villages and located within village boundaries are managed by Revenue Administration. There is no systematic management or exploitation of these village woodlands. They produce fuel wood and grow *babul* trees covered by small shrubs.

The forest areas managed by Chief Forest Conservator are properly preserved. For this purpose, forests are classified as reserved or protected and the rest are non-classified. Reserved and protected forests are reserved permanently as forests either for production of timber and other forests produce or for other protective purposes, such as prevention of soil erosion, flood, halting deserts, etc. Unclassed forests are not exploitable. These include forest areas which either cannot be worked due to unfavourable physical conditions or have been permanently destroyed but have not yet been put to any other use. The area under reserved and protective forests has continuously increased since 1949-50, consequent upon the acquisition of private forests by the State after abolition of the intermediary land tenures. The Government extended their conservation policy to these areas. Of the total forest area of 763 thousand sq. kilometres, during 1964-65, reserved area was 327.2 thousand sq. kilometres (43.5 per cent) and another 226.0 thousand sq. kilometres (29.9 per cent) as protected.

Felling of old and ripe or useless trees at regular intervals, reforestation of these areas and afforestation of under-stocked or badly stocked areas or of new areas brought under forests are the main constituents of efficient forest management.

Forest Products : Forests in India contribute hardly 0.6 to 0.8 per cent towards the national income. The per capita forest area is 1.8 and 3.5 hectares in the U.S.A. and U S.S.R. respectively, as against 0.2 hectare in India. The per capita consumption of round-wood in India works out to hardly 0 042 cubic metre, compared with 1.64 cubic metres in the U.S.A. The consumption of pulp products is hardly 0.7 kg. as against over the 34 kg. in U.K.

TABLE XXXIX

Annual value of Imports and Exports of all Commodities *vis-vis* Forest Products (1961-62 to 1969-70)

(Rs. in million)

	Imports			*Exports*		
Year	All Commodities	Forest Products	Column 3 as % of column No. 2	All Commodities	Forest Products	Column 6 as % of Column No. 5
1	2	3	4	5	6	7
1961-62	10.901	270	2.5	6,552	154	2.4
1962-63	11.315	276	2.4	6,781	161	2.4
1963-64	12,229	244	2.0	7,893	167	2.1
1964-65	13,490	252	1.9	8,132	163	2.0
1965-66	13.940	237	1.7	8,056	154	1.9
1966-67	20,784	339	1.6	11,529	186	1.6
1967-68	19,743	323	1.6	11,928	200	1.7
1968-69	18,616	327	1.7	13,563	258	1.9
1969-70	15,675	390	2.5	14,086	276	2.0

The Indian Timber Trend Study based on the 1953-55 situation concluded that, 'The per capita requirement of round-wood is expected to go up by 18 per cent from 1953-55 to 1975, but meanwhile the supply tends to dwindle down by 23 per cent'. This is a big challenge which the Indian forests have to accept. As our supplies of wood fall short of demand, on a rough estimate, 250 million tonnes cowdung is burnt annually as fuel. This is colossal waste and has got to be stopped. There is a heavy demand for special qualities and types of Indian wood in the world. In the

interest of economic development and foreign exchange earnings there is urgent need to increase timber production.

TABLE XL

Output of Forest Products
1961-62 to 1966-67

Q : Thousand cubic metres
V : Thousand rupees

		1961-62	1962-63	1963-64	1964-65	1966-67
Timber	Q	4,287	5,955	6,543	5,926	8,369
	V*	307,478	251,587	441,179	445,163	951,931
Round-wood	Q	1,088	1,549	596	513	
	V	96,021	107,341	47,980	32,965	
Pump and	Q	216	104	14	12	
Matchwood	V	616	1,466	570	2,160	
Firewood	Q**	10,479	12,880	12,259	12,574	12,728
	V	84,370	72,822	99,311	101,278	127,959
Charcoal-wood	Q	386	277	227	186	
	V	5,691	4,058	5,462	4,064	
Bamboo & Canes	V	24,562	26,304	20,951	20,544	27,313
Gums	V	2,343	1,604	1,594	1,761	32,275
Resin	V	18,577	21,671	25,432	29,578	
Sandal-wood	V	11,119	9,954	9,984	9,984	—

*Includes timber, round-wood and pump and matchwood.
**Includes firewood and charcoal wood, for the year 1966-67.

Imports and Exports : Exports and imports of forest products are quite negligible in the total foreign trade of the country. India imports mainly the major forest products like wood-lumber and cork, paper and paper waste, wood and cork manufacture, paper, paper-board and their manufacture. The main source of supply of teak wood is Burma while other types of wood are imported from U.S.A., Canada, U.K., Sweden and Finland. Paper and pulp products are imported mainly from Sweden, Norway, Australia and U.K. From among the major forest products, a large quantity of wood is also being exported which is primarily of the hard type such as sandal-wood and some derived products. Among derived products, paper and paper making materials are the important items.

Whereas imports consist predominantly of major products, exports are dominated by minor products. Exports of both major and minor products have gone up appreciably during the last few years and an aggressive export policy is being followed by the Government while every possible effort is also being made to cut on

imports. The object is that the present deficit in exports over imports should end as early as possible.

Forest Labour and Employment : Forests in India do not provide extensive employment. What is, however, important is that these activities are practised in such areas where opportunities of employment from other industries are very few. In 1949-50, on an average, 204.5 thousand persons per day were employed on a whole time basis, and 365 thousand per day on part time basis. Of the 204·5 thousand whole time employees 19.4 thousand were engaged in forest management, 129.4 thousand in forest extraction and 55.7 thousand in forest industries. About 75 per cent of the part time workers were employed in forest extraction. The number of these workers no doubt declined in subsequent years. It is, however, estimated that during 1970-71, forestry activities provided employment to about 3 million persons.

The tribal population living within or near forest areas is the major source for recruiting forest labour. The tribal population, the original settlers of the land, was driven to the forest by its sheer incapacity to adjust itself to the economic forces of a competitive economy. The tribal people forthrightness, loyalty, honesty and limited aspirations for material prosperity were exploited by unscrupulous and greedy persons. Those originally settled in forests enjoyed unrestricted rights to timber, for grazing cattle, fuel and for cultivation of land. Their rights were severely curtailed with the enunciation of the policy of conservation of forests. They could no longer practise zooming cultivation, and they did not possess the necessary skill for farming of cultivated lands. Forest lands are less fertile in most cases for growing crops. All these reasons led to dwindling incomes and increased poverty of the forest settlers. Forest labour then came to be a major opening to them to earn. Forest contractors often exploited the economic conditions of the tribal forest labour. The Scheduled Tribes Commission set up in April 1960, studied the economic conditions of tribals living in forest areas in nine important States. It observed that the special machinery to protect tribals against exploitation by outsiders had not worked satisfactorily. Lack of continuous employment and indebtedness were listed as two major problems. The commission recommended organization of forest labour co-operatives on the lines of those operating in scheduled areas of Maharashtra and Gujarat. The problem of indebtedness should receive immediate and more decisive attention. Regarding indebtedness, some ameliorative measures have been adopted in a few States. In Andhra Pradesh, for instance, the outstanding interest was discharged in January 1957. These measures are, however, not adequate.

Forest Labourers' Co-operative Societies : The idea of forming Forest Labourers' Co-operative Societies was first conceived for the Warli tribals of Thana district in the former Bombay State. This was subsequently developed into Forest Labourers' Co-operative Societies in 1945-46. Under this system, forest contracts, instead of being sold by auction are given on an agreed basis to the Forest Labour Co-operative. The forest labourers, besides earning wages as per the prescribed rates for different operations, also receive bonus and other facilities from the profits of the co-operative societies. The enthusiasm evinced by the tribals in working these societies can be seen from the spread of these societies over the large portion of the forest area in the former Bombay State.

A similar effort at prompting labourers' co-operatives was also made in Tamil Nadu. In 1950, the State Government appointed a team of experts to formulate plans for amelioration of the tribals and for the development of the Agency areas in the four districts of Srikakulam, Visakhapatnam, East Godavari and West Godavari. The team recommended a network of multi-purpose co-operative societies at different centres in the Agency areas with a view to eliminating exploitation by the money-lenders and traders. These societies would (i) purchase all the minor forest produce collected by the tribals, and would also buy marketable surplus of field crops, (ii) sell them their daily needs like kerosene oil, salt, spices, etc. and (iii) provide them easy credit facilities.

After the constitution of Andhra Pradesh, the State Government examined these suggestions, but it was found that the co-operative institutions functioning in the agency areas did not work satisfactorily among the tribals. The conclusion reached was that an institution under the control of the Government and catering to the needs of tribals was necessary. As a result, the Andhra Scheduled Tribes Co-operative Finance and Development Corporation was constituted on October 26, 1956, under the Madras Co-operative Societies Act, 1932 with its area of operation extending to the scheduled areas in the districts of Srikakulam, Visakhapatnam, East Godavari and West Godavari. The Corporation started functioning on April 5, 1957.

By end of June 1960, eight Primaries (Agency Produce Co-operative Marketing Societies) had been affiliated to the Corporation covering the entire tribal areas in Srikakulam and Visakhapatnam districts and parts of the tribal areas in the East Godavari district.

Forest Labour Co-operatives : In the National Forest Policy Resolution adopted by the Government of India in 1952, it was stated that no forest policy, however well-intentional and meticulously

drawn up, had the slightest chance of success without the willing support and co-operation of the people in the neighbourhood of the forests. It was stressed that intermediaries who exploited both the forest and the local labour for their own benefit might be supplanted gradually by forest labour co-operatives which might be formed to suit local conditions. Appreciable progress has since been made in the organization of such co-operatives particularly in Maharashtra and Gujarat. Their number now exceeds 1,200 and their work is valued at over Rs. 4.50 crores. In some States, public agencies such as Tribal Development Corporations have been set up with the object, among others, of promoting such co-operatives.

Forestry in The Fourth Plan : In forestry, there are three main objectives : increase productivity link up, forest development with various forest-based industries and to develop forests as a support to rural economy. As regards the first objective, it is necessary to stress that one of the problems of Indian forests is relatively low producti-vity. Forests occupy about 23 per cent of the land surface of the country and yet the contribution of forestry and logging in the net domestic product at current prices in 1967-68 was only 1.2 per cent. The average per hectare production per annum of forests in India is estimated at about 0.53 cubic metre as against the world average of 2 cubic metres. This is indicative of the size of the effort necessary in the coming years.

The immediate objective is to attain self-sufficiency in industrial and commercial timbers, in fuel wood and other forestry products required by consumers and the ancillary industries. This objective is proposed to be achieved (i) by increasing the area under man-made forests for the most efficient and economical utilization of space; (ii) by increasing productivity of existing forests through better logging techniques and tools; (iii) by improvement of com-munications so that hitherto untapped resources can be exploited; and (iv) by popularization of the use of secondary timber after proper seasoning and preservation treatment. Accordingly, activi-ties under the various schemes, namely, (1) plantation of quick-growing species, (2) economic plantations for industrial and com-mercial uses, (3) rehabilitations of degraded forests, and (4) farm forestry-*cum*-fuel plantations, were intensified during the year. Development of communications was also accelerated to increase accessibility to the forests. As against 1.36 lakh hectares of man-made forests raised during 1969-70, 1.39 lakh hectares are likely to be planted with industrially important species during the year under review.

Emphasis is being laid during the Fourth Five Year Plan on measures to meet the immediate and long-term agricultural and

industrial requirements, since the demand for various forest products, timber, domestic fuel and raw materials for industries has rapidly increased. Consumption of industrial wood in 1968-69 is estimated at 11 million cubic metres, while the demand by 1973-74 is projected at 16 to 17 million cubic metres. It should be possible to increase the supply by 1973-74 to about 13.5 million cubic metres. To increase forest production, the Fourth Plan envisages further efforts at creating large scale plantations of valuable quick-growing species and species of economic and industrial importance. Intensive exploitation and rational utilization of existing forest resources will be aimed at. Concerted efforts at regenerating areas, where forest produce is removed for industrial uses will be taken. This is equally important for all forests where produce is to be utilized for new paper and other industrial projects. Steps will be taken to bridge the gap between demand and supply by fuller utilization of forest resources, other than wood, such as bamboos and grassized timber. The object is to achieve self-sufficiency in forest products as early as possible, specially for major forest-based industries such as pulp, paper, newsprint, wood panel products and matches so that the import of some of these items may be replaced and some sizeable exports of paper and wood panel products built up. In some States, there are inaccessible forests which have not yet been economically exploited. Communications will be provided in selected areas. In addition, in areas, which are already being exploited, improved methods of working, including reduction of wastage, will be introduced. The consolidation and scientific management of hitherto unorganized forests and protection against unregulated cutting, grazing and fire will be undertaken.

The basic principle of Government policy that minor forests, pastures and grazing grounds must be managed mainly in the interest of the population of the tract and particularly to serve their requirements of fuel and fodder, has long been recognized. However, efforts made in the past to achieve these aims have not proved successful. Unless adequate steps are taken early to protect trees and raise firewood plantations, a serious shortage of firewood is apprehended in rural areas, despite the availability of alternative fuel in some areas. Attempts have, therefore, to be made to formulate schemes for management of land resources lying between reserved forests and arable land to protect them from further deterioration, and to develop them as adjuncts to the rural economy, particularly for fodder and fuel. It will be necessary to plan for concerted action in this respect on the part of the forest, revenue, agriculture and animal husbandry departments in co-operation with village panchayats and *zila parishads*.

One of the new schemes will provide for co-ordinated research in forestry. This will be undertaken in close collaboration with the States under the overall guidance of the Forest Research Institute, Dehra Dun, and the Forest Research Laboratory at Bangalore. New regional research centres will be established at Gauhati and Jabalpur. The schemes of research mainly relate to plantation programmes and ecological studies. Attention will be given to collection of more comprehensive statistics.

The schemes of pre-investment survey of forest resources will be extended to 75,000 sq. km. of forest areas. The project for training forest officers and the field staff of forest labourers' co-operative societies and of forest contractors in the use of basic logging tools and on the planning of logging operations will be continued.

TABLE XLI

Financial *Vis-a-Vis* Physical Achievements of Selected Schemes

Schemes	*1st Plan (1951-56)*	*2nd Plan (1956-61)*	*3rd Plan (1961-66)*	*Post/Third (1966-69)*	*Base Level (1968-69)*	*Level anticipated (1973-74)*
1	2	3	4	5	6	7
Plantation schemes						
Quick growing species						
F	—	—	38.0	80.9	—	—
P	—	—	84.8	160.8	245.6	813.4
Economic Plantation						
F	13.7	68.4	112.0	96.4	—	—
P	50.0	217.4	239.9	153.9	661.1	1,076.3
Farm Forestry						
F	—	—	20.0	20.5	—	—
P	—	—	91.0	43.1	134.0	209.0
Communications						
F	4.2	24.8	55.6	32.6	—	—
P	6.8	16.4	17.3	4.0	44.4	58.4
Nature conservation						
F	—	9.8	17.5	11.9	—	—
P	—	—	—	—	2,010.7	2,198.7

F=Stands for financial achievement in million rupees.
P=Stands for physical achievement in thousand hectares in respect of plantation schemes and thousand kilometres in the scheme of communications.

Forest Policy : The beginning of scientific forestry in India may be reckoned with the appointment of an Inspector General of Forests in 1863. The forest management was to aim at:

1. retaining under forests whatever forest areas happened to be available at the time,
2. protecting such areas against misuse by the people,
3. maintaining them under proper silvicultural treatment,
4. limiting timber removals to what would be permissible under sustained yield principles, and
5. improving the forest crop by artificial cultivation.

A regular forest policy on these lines could not, however, be laid down earlier than 1894. The Royal Commission on Agriculture also made certain recommendations with a view to increasing the utility of forests as follows:

1. Appointment in each province of a forest utilization officer, whose main function should be to develop forest industries.
2. A reclassification of forest areas into a major division in charge of commercial forests and those necessary on physical and climatical grounds, and a minor division in charge of minor forests, fuel plantations, village woodlands and waste lands.
3. Transfer of wooded areas then under the control of Forest Department to village management through properly elected committees or panchayats on the lines adopted by the then Madras Government.
4. Institution of short courses at the agricultural colleges for all newly recruited forest officers to foster a closer touch between the Agricultural and Forest Departments.

No concrete steps were taken by Government to implement these recommendations. Forests being an important source of revenue in many States, there is often a tendency to overfelling, ignoring the needs of sound management. Sometimes a programme of expanding forests clashes with the needs of agriculture and animal husbandry. These problems only underline the importance of a proper land use survey in which side by side with technical and economic consideration of land capability, due consideration should be shown to the local needs as well. Further, forests being a State subject, there is need for a sound management policy, and its implementation as well as co-ordination with the State programmes.

The Central Board of Forestry was set up in 1950, to implement the policy of development. The annual celebrations of *Van Mahotsava* (Forest Festivals) were also instituted simultaneously. *Van Mahotsava* aims at making the people conscious of the importance of

forests and urging them to contribute their share in preserving and developing the forest resources of the country.

Many changes have taken place since then in the pattern and extent of demand for forest produce. The protective functions of forests have been recognized. This necessitated a revision in the forest policy. The Government of India declared its new policy in 1952. The National Forest Policy as it was called, was formulated on the basis of six paramount needs of the country as detailed below :

1. The need for evolving a system of balanced and complementary land use under which each type of land is allotted to that form of use under which it would produce most and deteriorate least.
2. The need for checking :
   (a) the denudation in mountainous regions, on which depends the perennial water supply of the river system, whose basins constitute the fertile core of the country ;
   (b) the erosion progressing apace along the treeless banks of the great rivers leading to ravine formation and on vast stretches of undulating wastelands depriving the adjoining fields of their fertility ; and
   (c) the invasion of sea sands on coastal tracts and the shifting of sand dunes, more particularly in the Rajasthan desert.
3. The need for establishing tree lands, wherever possible, for the amelioration of physical and climatic conditions promoting the general well-being of the people.
4. The need for ensuring progressively increasing supplies of grazing, small wood for agricultural implements and, in particular, of firewood to release the cattle dung for manure to step up food production.
5. The need for sustained supply of timber and other forest produce required for defence, communications and industry.
6. The need for the realization of the maximum annual revenue in perpetuity consistent with the fulfilment of the need enumerated above.

These vital needs actually indicate the functions the forests are to perform and provide the fundamental basis of the policy governing their future.

In brief, the policy aims at evolving an efficient management and progressive development of forests. As a target to be achieved over a period, it was decided to raise the area under forests to one-third of the total geographical area.

The immediate objective of forestry development is to attain self-sufficiency in industrial and commercial timbers, in fuel wood and other forestry products required by consumers and ancillary industries. This objective is proposed to be achieved (i) by increasing the area under man-made forests for most efficient and economical utilization of space ; (ii) by increasing productivity of existing forests through better logging techniques and tools ; (iii) by improvement of communications so that hitherto untapped resources can be exploited; and (iv) by popularization of the use of secondary timbers after proper seasoning and preservation treatment. Accordingly, activities under the various schemes, namely, (1) plantation of quick-growing species, (2) economic plantation for industrial and commercial uses, (3) rehabilitation of degraded forests, and (4) farm forestry-*cum*-fuel plantations were intensified during the year. Development of communications was also accelerated to increase the accessibility to forests. As against 1.36 lakh hectares of man-made forests raised during 1969-70, 1.39 lakh hectares are likely to be planted with industrially important species during the year under review.

The growing industrial and economic development needs of the country have necessitated the maximum exploitation of forest resources. Measures for raising productivity and setting up man-made forests on a large scale to meet country's demand for raw materials are being intensified, with special emphasis being laid on raising plantations of fast growing species and other valuable commercial species, rehabilitation of degraded forests, better extraction techniques, improvement of forest communications and popularizing the secondary species of timber after proper seasoning and preservative treatment.

The Centrally sponsored project for "pre-investment survey of forest resources", has thus been in operation since 1965, with assistance from the United Nations Special Fund for investigating the economic availability of raw materials for the development of wood-based industries in the northern, central and southern zones, covering a total area of about 3 million hectares. Under this project, good progress has been made in assessing the raw material availability and possibility of development of wood-based industries in these areas. During the year 1968-69, small and large scale aerial photographs were taken in various zones. Field work on forest inventory has been almost completed in the southern zone. Besides, field manuals for the north and south zones and manuals for industrial plantations and species, elimination trials, investigations on costs and methods, etc. have been prepared.

APPENDIX

Classification of Forest Area

(Sq. Kilometres)

State/Union Territory and Year		Geographical Area	Total Forest Area	Classification of Forest					
				Type of Forests		Legal Status			
				Merchantable	Unprofitable or inaccessible	Reserved	Protected	Unclassed	Coniferous (Soft wood)
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Andhra Pradesh	1963-64	275,244	64,719	50,824	13,895	42,168	17,736	4,815	—
	1964-65		64,504	50,824	13,680	42,168	17,736	4,600	—
Assam	1963-64	121,973	45,258(b)	45,130(b)	128	16,166	11	29,081(b)	15
	1964-65		45,258(b)	45,130(b)	128	16,166	11	29,081(b)	15
Bihar	1963-64	174,008	31,460	21,325	10,135	4,087	25,869	1,504	—
	1964-65		31,427	21,325	10,102	4,113	25,851	1,463	—

N.A.—Not available.

(a) —Included under the head "Forest Department".

(b) —Includes forest area of 20,337 sq. kilometres under autonomous district council.

APPENDIX (*Contd.*)

Classification of Forest Area

(Sq. Kilometres)

State/Union Territory and Year		*Area according to*				*Area according to*			*Percentage of Col. (3) to Col. (2)*
		Composition				*Ownership*			
		Non-coniferous (Hard wood)			*Forest Deptt.*	*Civil Authorities*	*Corporate Bodies*	*Private Individuals*	
		Sal	*Teak*	*Miscellaneous*					
(10)		(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Andhra Pradesh	1963-64	8	15,732	48,979	64,719	—	—	—	23.5
	1964-65	8	15,732	48,764	64,504	—	—	—	23.4
Assam	1963-64	—	—	45,243(b)	24,921	—	20,337(b)	—	37.1
	1964-65	—	—	45,243(b)	24,921	—	20,337(b)	—	37.1
Bihar	1963-64	22,373	—	9,087	3,416	44	—	—	18.1
	1964-65	22,372	—	9,055	31,383	44	—	—	18.1

APPENDIX (Contd.)

Classification of Forest Area

(Sq. Kilometre)

State/Union Territory and Year		*Geographical Area*	*Total Forest Area*	*Classification of Forest*					
				Type of Forests		*Legal Status*			
				Merchantable	*Unprofitable or inaccessible*	*Reserved*	*Protected*	*Unclassed*	*Coniferous (Soft wood)*
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Gujarat	1963-64	187,091	17,946	17,946	—	6,374	1,277	10,295	—
	1964-65		18,660	18,470	190	6,540	2,130	9,990	—
Jammu and Kashmir	1963-64	222,870	21,07[illegible]	8,496	12,583	(e)	(e)	(e)	19,340
	1964-65		20,362(d)	8,496	11,866(d)	(e)	(e)	(e)	19,340
Kerala	1963-64	38,869	10,435	7,273	3,162	8,228	475	1,732	—
	1964-65		10,419	7,271	3,148	8,225	475	1,719	—
Madhya Pradesh	1963-64	443,459	171,609	144,133	27,496	75,933	90,992	4,684	—
	1964-65		171,609	144,113	27,496	75,933	90,992	4,684	—

(c) —Includes an area of 4,266 sq. kilometres in the year 1963-64 and 3, 875 sq. kilometres in 1964-65 for which details according to type of forests are not available.

(d) – Excludes an area of 717 sq. kilometres for rakhs and games reserved land.

(e) —Excluding Jammu and Kashmir for which break-up is not available. The legal classification of forest in vogue in Jammu and Kashmir State is "Demarcated", "Partially demarcated" and "Undemarcated."

APPENDIX (*Contd.*)

Classification of Forest Area

(Sq. Kilometres)

State/Union Territory and Year		*Area according to*				*Area according to*			*Percentage of Col. (3) to Col. (2)*
		Composition				*Ownership*			
		Non-coniferous (Hard wood)			*Forest Deptt.*	*Civil Authorities*	*Corporate Bodies*	*Private Individuals*	
		Sal	*Teak*	*Miscellaneous*					
(10)		(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Gujarat	1963-64	—	10,834	7,112	15,892	23	—	2,031	9.6
	1964-65	—	10,610	8,050	16,510	(a)	—	2,150	10.0
Jammu and Kashmir	1963-64	—	—	1,739	21,079	—	—	—	9.5
	1964-65	—	—	1,022	20,362	—	—	—	9.1
Kerala	1963-64	—	1,158	9,277	8,849	—	—	1,586	26.8
	1964-65	—	1,158	9,261	8,833	—	—	1.586	26.8
Madhya Pradesh	1963-64	21,554	28,464	121,591	171,609	—	—	—	38.7
	1964-65	21,554	28,464	121,591	171,609	—	—	—	38.7

APPENDIX (*Contd.*)

Classification of Forest Area

(Sq. Kilometres)

State/Union Territory and Year		*Geographical Area*	*Total Forest Area*	*Classification of Forest*					
				Type of Forests		*Legal Status*			
				Merchantable	*Unprofitable or inaccessible*	*Reserved*	*Protected*	*Unclassed*	*Coniferous (Soft wood*
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Madras	1963-64	129,966	22,220	14,230	7,990	17,240	3,830	1,150	—
(Tamil Nadu)	1964-65		22,220	14,230	7,990	17,240	3,830	1,150	—
Maharashtra	1963-64	307,269	67,599	38,487	29,112(c)	40,492	16,944	10,163	—
	1964-65		67,094	38,290	28,804(c)	40,267	16,933	9,894	—
Mysore	1963-64	191,757	36,848	31,160	5,688	28,500	2,868	5,480	—
(Karnataka)	1964-64		35,220	26,150	9,070	29,120	5,690	410	—
Orissa	1963-64	155,860	66,643	56,291	10,352	23,404	7,928	35,311	—
	1964-65		68,160	56,830	11,330	23,590	6,440	38,130	—
Punjab	1963-64	122,010	12,743	6,927	5,816	584	9,281	2,878	4,822
	1964-65		17,850(f)	6,920	10,930(f)	614	14,211	3,025	4,800
Rajasthan	1963-64	342,267	38,257	38,257	—	11,181	18,047	9,029	—
	1964-65		38,477	38,477	—	10,995	18,278	9,204	—

(f) —An increase in the area as compared to previous year is due to the inclusion of 5,085 sq. kilometres mostly unculturable in Lahul and Spiti Forest Division.

APPENDIX (*Contd.*)

Classification of Forest Area

(Sq. Kilometres)

State/Union Territory and Year		*Area according to* — *Composition* — *Non-coniferous (Hard wood)* — *Sal*	*Teak*	*Miscella-neous*	*Forest Deptt.*	*Area according to* — *Ownership* — *Civil Authorities*	*Corporate Bodies*	*Private Individuals*	*Percentage of Col. (3) to Col. (2)*
(10)		(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Madras	1963-64	—	780	21,440	21,070	(a)	N.A.	1,150	17.1
(Tamil Nadu)	1964-65	—	780	21,440	21,070	(a)	N.A.	1,150	17.1
Maharashtra	1963-64	—	17,026	50,573	56,721	6,514	10	4,354	22.0
	1964-65	—	18,456	48,638	56,768	6,353	10	3,963	21.8
Mysore	1963-64	—	10,005	26,843	31,194	3,846	231	1,577	19.2
(Karnataka)	1964-65	—	10,000	25,220	31,950	(a)	400	2,870	18.4
Orissa	1963-64	36,777	530	29,336	66,433	—	—	210	42.8
	1964-65	38,300	570	29,290	67,950	—	—	210	43.7
Punjab	1963-64	47	—	7,874	10,291	3	25	2,424	10.4
	1964-65	47	—	13,003	15,366	—	25	2,459	14.6
Rajasthan	1963-64	—	5,180	33,077	38,257	—	—	—	11.2
	1964-65	—	5,180	33,297	38,477	—	—	—	11.2

APPENDIX

Classification of Forest Area

(Sq. Kilometres)

State/Union Territory and Year		Geographical Area	Total Forest Area	Classification of Forest					
				Type of Forests		Legal Status			
				Merchantable	Unprofitable or inaccessible	Reserved	Protected	Unclassed	Coniferous (Soft wood)
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Uttar Pradesh	1963-64	294,366	46,692	31,787	14,905(g)	26,154	1,898	18,640(h)	12,359
	1964-65		46,641	31,787	14,854(g)	26,008	1,886	18,747(g)	12,530
West Bengal	1963-64	87,676	11,803	11,034	769	6,996	4,159	648	91
	1964-65		11,810	11,190	620	7,000	4,100	710	90
Andaman & Nicobar Islands	1963-64	8,293	6,055	5,330	725	2,435	3,434	186	—
	1964-65		6,055	5,330	725	2,434	3 621	—	—
Dadra Nagar Haveli	1963-64	489	...... Non-reporting						
	1964-65								

(g) —Includes an area of 8,583 sq. km. in the year 1963-64 and 5,496 sq. km. in 1964-65 for which details are not avaiable.

(h) Includes an area of 10,176 sq. km. for which seperate break-up into Reserved, Protected and Unclassed are not available.

APPENDIX (*Contd.*)

Classification of Forest Area

(Sq. Kilometres)

State/Union Territory and Year		*Area according to Composition*				*Area according to Ownership*			*Percentage of Col. (3) to Col. (2)*
		Non-coniferous (Hard wood)							
		Sal	*Teak*	*Miscellaneous*	*Forest Deptt.*	*Civil Authorities*	*Corporate Bodies*	*Private Individuals*	
(10)		(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Uttar Pradesh	1963-64	6,351	132	27,850	35,079	9,855	1,593	165	15.9
	1964-65	7,402	210	26,499	35,030	9,681	1,764	166	15.8
West Bengal	1963-64	4,706	10	6,996	11,536	148	70	49	13.5
	1964-65	4,700	20	7,000	11,690	(a)	70	50	13.5
Andaman & Nicobar Islands	1963-64	—	18	6,037	6,055	—	—	—	73.0
	1964-65	—	—	6,055	6,055	—	—	—	73.0
Dadra Nagar Haveli	1963-64	........Non-reporting........							
	1964-65								

APPENDIX (*Contd.*)

Classification of Forest Area

(Sq. Kilometres)

Union/Territory State and Year		Geographical Area	Total Forest Area	Classification of Forest					
				Type of Forests		Legal Status			
				Merchantable	Unprofitable or inaccessible	Reserved	Protected	Unclassed	Coniferous (Soft wood)
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Delhi	1963-64	1,483	53	32	21	7	14	32	—
	1964-65		53	32	21	7	14	32	—
Goa, Daman and Diu	1963-64	3,733	1,050	930	120	1,050	—	—	—
	1964-65		1,050	930	120	1,050	—	—	—
Himachal Pradesh	1963-64	28,195	11,177	9,022	2,155	1,508	7,237	2,432	7,310
	1964-65		12,520	9,161	3,359	1,509	9,498	1,513	8,239
Laccadive Minicoy & Amindivi Islands	1963-64	28	—	—	—	—	—	—	—
	1964-65		—	—	—	—	—	—	—
Pondicherry	1963-64	473	—	—	—	—	—	—	—
	1964-65		—	—	—	—	—	—	—

APPENDIX (*Contd.*)

Classification of Forest Area

(Sq. Kilometres)

State/Union Territory and Year		*Area according to*				*Area according to*			*Percentage of Col. (3) to Col. (2)*
		Composition				*Ownership*			
		Non-coniferous (Hard wood)							
		Sa	*Teak*	*Miscellaneous*	*Forest Deptt.*	*Civil Authorities*	*Corporate Bodies*	*Private Individuals*	
(10)		(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Delhi	1963-64	—	—	53	12	6	35		3.6
	1964-65	—	—	53	12	6	35		3.6
Goa, Daman and Diu	1963-64	—	—	1,050	1,050	—	—	—	28.2
	1964-65	—	—	1,050	1,050	—	—	—	28.2
Himachal Pradesh	1963-64	319	—	3,548	10,036	—	2	1,139	39.6
	1964-65	318	—	3,963	11,379	—	2	1,139	44.4
Laccadive Minicoy & Amindivi Islands	1963-64	—	—	—	—	—	—	—	—
	1964-65	—	—	—	—	—	—	—	—
Pondicherry	1963-64	—	—	—	—	—	—	—	—
	1964-65	—	—	—	—	—	—	—	—

APPENDIX (*Contd.*)

Classification of Forest Area

(Sq. Kilometres)

Union/Territory State and Year		Geographical Area	Total Forest Area	Classification of Forest					
				Type of Forests		Legal Status			
				Merchantable	Unprofitable or inaccessible	Reserved	Protected	Unclassed	Coniferous (Soft wood)
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Manipur	1963-64	22,346	6,022	3,652	2,370	1,005	2,220	2,797	9 07
	1964-65		5,990	2,910	3,080	530	1,580	3,880	900
Nagaland	1963-64	16,488	2,660	1,370	1,290	300	520	1,840	230
	1964-65		2,630	1,370	1,260	300	520	1,810	230
N.E.F.A.	1963-64	81,426	48,620	48,620	—	9,250	—	39,370	—
	1964-65		48,620	48,620	—	9,250	—	39,370	—
Tripura	1963-64	10,451	6,353	2,211	4,142	4,114	2,239	—	—
	1964-65		6,353	2,208	4,145	4,122	2,231	—	—
All-India	1963-64	3,268 290	747,312	594,447	152,854	327,176(e)	216,979(e)	182,067(e)	45,074
	1964-65		752,982	590,064	162,918	327 181(e)	226,027(e)	179,412(e)	46,144

APPENDIX (*Contd.*)

Classification of Forest Area

(Sq. Kilometres)

State/Union Territory and Year		*Area according to Composition*				*Area according to Ownership*			*Percentage of Col. (3) to Col. (2)*
		Non-coniferous (Hard wood)							
		Sa	*Teak*	*Miscella-neous*	*Forest Deptt.*	*Civil Authorities*	*Corporate Bodies*	*Private Individuals*	
(10)		(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Manipur	1963-64	—	36	5,079	3,225	2,797	—	—	26.9
	1964-65	—	40	5,050	5,990	(a)	—	—	26.8
Nagaland	1963-64	130	—	2,300	850	—	1,810	—	16.1
	1964-65	130	—	2,270	850	—	1,780	—	15.9
N.E.F.A.	1963-64	2,560	—	46,060	48,470	—	150	—	59.7
	1964-65	2,560	—	46,060	48,470	—	150	—	59.7
Tripura	1963-64	422	1	5,930	6,353	—	—	—	60.8
	1964-65	427	2	5,924	6,353	—	—	—	60.8
All-India	1963-64	95,247	89,906	517,074	685,117	23,236	24,263	14,685	22.9
	1964-65	97,818	91,222	517,798	696,582	16,084	24,573	15,743	23.0

CHAPTER VII

MINING

I. Mining Before Independence

Perhaps the earliest use of minerals during pre-historic times by mankind was in the form of primitive implements made of agate, flint and pitchstone. From that stage, man has steadily advanced to the art of employing minerals for innumerable uses. In fact, today we have become so much dependent on mineral products that the very existence of civilization without them may be considered impossible, for they provide us with the materials for building humble dwellings or sky-scrapers, domestic appliances, agricultural implements, for the manufacture of mineral fertilizers vital to agriculture, lighting and power, means of transport on land, sea and air, and a large variety of implements, tools and machines used both in peace and war, besides serving as a medium of exchange of singular importance in international credit and national stability.

Even before the industrial era the lure of minerals and the craving for precious metals had profoundly affected the trend of history by encouraging exploration, inciting conquests and promoting spread of civilization. India is said to have been one of the most important centres of trading for diamonds, gold, emeralds and sapphires. The export trade of these precious commodities attracted the attention of the West and created an irresistible lure to acquire such interests. Columbus, while attempting to find a sea-route to India, discovered America. Thus minerals have played an ever-increasing role in world affairs, and today a fervent search is being made all over the world for uranium and other atomic minerals to manufacture nuclear weapons for war purposes and to utilize atomic energy in peace.

History of Mining in India: India has a long tradition in mining and smelting of gold, copper, lead, zinc and iron ores and mining and cutting of diamonds. Until 1886, the entire diamond wealth of the world had its origin in India. As far back as 300 B.C., Kautilya wrote, "Mines are the sources of treasury". Gold, copper, lead, silver and zinc were mined long before iron ore is known to have been worked in India, for the last 3,000 years or more. It is said that the famous "Damascus" swords of medieval age were made of iron imported from India. There was commerce between India on one hand and Egypt, Africa, Arabia, Persia, the Near East, and several other countries on the other before the dawn of the Christian-era. That Indian steel was of great antiquity

is borne out by the fact that it was thought worthy of a king's present. King Poros is said to have presented 13.63 kg. of Indian steel to Alexander the Great (326 B.C.). The famous pillar near Qutub Minar, Delhi, is of solid wrought iron of excellent quality produced in India by indigenous small furnaces, and has stood the ravages of weather without showing signs of rust.

Although there is enormous evidence of the ingenuity, skill and industry of ancient miners of India in mining gold, silver, and diamond and smelting of ores, or even when the first tonne of Indian coal was struck in the Raniganj coal-fields as far back as 1775, or even when in 1843 the first Joint Stock Coal Co. was registered, systematic mining on an appreciable scale had been attempted only towards the close of the 19th century.

Mineral Industry from 1905 to 1946: The development of industries in India before independence, though steady, had been rather slow; therefore, mineral development which had necessarily to keep pace with the growth of other industries requiring the use of mineral raw materials was also very slow. The total value of mineral production of the former Indian Empire (including Burma & Pakistan) in the year 1905 was about Rs. 100 million. Only 15 minerals of economic importance were mined. There were 650 mines (301 coal and 349 non-coal) which employed nearly 110,000 persons. The mines were mostly working near the outcrops and the method of mining in many cases was primitive. Out of 301 coal mines 271 were located in Raniganj and Jharia coal-fields. The production of coal was 8.57 million tonnes. In order of value, the minerals produced were: gold, coal, manganese ore, petroleum, salt, saltpetre, mica, ruby, spinel-sapphire, lode stone, graphite, iron ore, tin ore, chromite, diamonds and magnesite.

The production of manganese from mines near Vijayanagaram which were started in 1891-92 had reached 64,300 tonnes in 1905 and over 112,200 tonnes in 1906. The production of manganese ore from the world-famous deposits of the Central Provinces (now forming parts of Madhya Pradesh and Maharashtra) in the new fields was over 154,000 tonnes in 1905 and rose to some 359,000 tonnes in 1906. Elsewhere in India, considerable activity followed the quest for this mineral with the result that by 1906, work was in progress in Sandur, Singhbhum, Panch Mahals and Mysore (Karnataka), so it can be said that by that year, principal Indian manganese deposits were in production with the output reaching 591,000 tonnes out of the world total production of 1,474,000 tonnes.

The factors responsible for the growth and expansion of the mining industry in India were the domestic need for coal, petroleum, iron and steel, gold and salt and the foreign demand for manganese ore and mica. With progressive industrialization, gold which was in the lead, yielded

the first place to coal for good since 1907 and second to petroleum from 1919 to 1931. On the separation of Burma with nearly 70 per cent of the total petroleum output, it regained its second place.

Mining of lead, silver and wolfram commenced in 1909 in Burma, while exploitation and export of monazite from Kerala started in 1911. Thorium extracted from monazite is used for the manufacture of gas mantles. With the establishment of the Tata Iron and Steel Company the mining of iron ore was considerably stepped up and steel production added to the domestic industry in 1912. This also strengthened the demand for coking coal, and the price of coal which had fallen to the lowest yet on record in 1911, improved in 1912 with increasing momentum which continued till the outbreak of World War I in 1914.

During the First World War period from 1914-18 the output of certain minerals and metals like lead, silver, wolfram and tin of Burma, coal, salt, chromite and saltpetre was stimulated. The low demand for manganese ore reduced the output of this mineral, but the increase in price marked the reduction in output. Gold showed a decline in output as well as in value which led to the closure of certain mines. Zinc concentrates from Burma and copper ore mainly from the Singhbhum area were other additions to the list of minerals produced. Ferro-manganese was manufactured in the country from 1917.

The entire demand for refractories other than fire-clay refractories was being met by imports. The First World War provided the Indian refractories industry an opportunity to expand. In 1915-16, Bird & Co. Ltd., added a Silica Works at Kumardhubi; in 1917-18, the Reliance Firebrick & Pottery Co. Ltd. came into being at Chanch; a little later the Behar Firebricks & Potteries Ltd., and the Bengal Firebrick Co. Ltd., and two other small concerns started manufacturing fire refractories. At the end of the war, Burn & Co. too added a Silica Section to their Raniganj factory. The expansion of the refractories industry gave a fillip to the mining of fire clay, China clay, silica, bauxite, felspar, kyanite, siliminite, chromite, magnesite and dolomite. The number of mines (coal and non-coal) rose from 781 in 1910 to 1718 in 1920, which means that the activities of the mining industry were more than doubled during that period of 10 years; the total value of minerals produced rose from Rs. 12 crores to nearly Rs. 18 crores. Due to difficulties of procurement, the value of imports of minerals and metals, which were mineral oil, salt, copper, iron and steel, declined from nearly Rs. 29.25 crores in 1914 to nearly Rs. 17.7 crores in 1918. The effect was wholesome to India which made her self-supporting in iron and steel and led to the establishment of several industries including a small charcoal blast furnace at Bhadravati (Karnataka) in 1923. A steady increase in the value of mineral production was coninued till 1924 when it reached a figure of nearly Rs. 28 crores excluding petroleum. India

became the largest producer of ilmenite since 1927. The production of copper from Rakha mines was short-lived and the mines were closed in 1924.

Trained Personnel for the Mining Industry: No industry can develop on sound lines unless trained and experienced technical persons are continuously available to it. Although the mining industry of India progressed rapidly during the first two decades of the present century, the availability of trained personnel was unsatisfactory. The country had to look up to Britain to meet its entire demand of experienced and qualified mining engineers, as there was no college or institution in India for training of mining engineers.

The Indian National Congress recognized the need for such a college as early as 1901, and adopted the following Resolution at its Calcutta Session in 1901.

"Resolved that this Congress notices with satisfaction the rapid progress of the mining industry of India and in consideration of the fact that the mineral resources of this country are vast and the facilities for acquiring a thorough knowledge of mining engineering in this country are almost nothing and in view of the fact that the tendency of recent legislation on mining namely Act VIII of 1901, is that all Indian mines must be kept under the supervision of mining experts, this Congress is of the opinion that a Government College of Mining Engineering be established in some suitable place in India after the model of the Royal School of Mines in England and the Mining Colleges of Japan and the Continent."

It was only on September 11, 1920 that the long awaited decision of the Government of India was announced. An all-India institution, financed by the Central Government providing high grade specialized instruction in mining engineering and geology and in other subsidiary and allied branches of science and engineering was to be established at Dhanbad.

Dr. D. Penman was appointed Principal of the new Institution in 1921. He submitted his scheme in 1922, which was accepted by the Government of India. But it was subsequently pruned as the Government of India slashed the estimates from Rs. 22 lakhs to Rs. 14 lakhs. Due to various impediments, it took nearly four years for the Institution to start functioning in December 1926.

Following the pattern and terminology adopted in naming the Royal School of Mines, London, the Institution was named Indian School of Mines.

The Indian School of Mines, Dhanbad, has been doing excellent work in maintaining a very high standard of training. Thus we find that most of the top and senior positions in Government departments,

public sector undertakings, mineral industry and a host of other technical organizations requiring mining or geological qualifications, are held by the alumini of this Institution.

The Banaras Hindu University was a pioneer in starting courses in mining and metallurgy of the degree standard. The first batch graduated in 1927; since then it has been making a very useful contribution to the mineral industry of India by way of supplying trained mining engineers and metallurgists.

The Indian mining industry experienced a great depression in 1930. Production declined considerably and the value of the production (excluding petroleum) which had touched Rs. 28 crores in 1924, fell rapidly to Rs. 14.70 crores in 1932. The quantity and value of production of coal, mica, manganese, chromite and iron ore fell steeply. The output of gold which had also gone down was arrested in 1931, when Britain went off the Gold Standard. Most of the manganese mines were closed down with almost complete cessation of work in the Central Provinces (Madhya Pradesh) in 1932. With the opening up of Mosabani Mines and the setting of copper smelter at Monbhandar near Ghatsila in 1927, steady production of copper was started.

The recovery of the Indian mining industry slowly started from the latter part of 1933 and a definite rising trend was visible in 1934. The industry has since shown a continuous increase in output. Production of coal, iron ore, mica and manganese reached a respectable figure. The value of mineral production in 1938 increased from Rs. 14.79 crores in 1932 to Rs. 33.81 crores. The output of coal reached 25.275 million tonnes in 1937 and the average price of Bengal Coal which was around Rs. 3.25 in 1936 slowly moved up to Rs. 3.94 per tonne in 1937.

A very important event which took place in the history of Indian Mining was the ban on employment of women below surface. It came into force from October 1, 1937.

Arising out of the Indian Coal Mining Committee's recommendations (1937), increased Government control was exercised over the mining for safety including compulsory stowing where necessary On May 27, 1939, the Coal Mines Safety (Stowing) Act, 1939, was brought into force and a Stowing Board was constituted the following month.

On the separation of Burma, the value of mineral production in India fell from Rs. 33.81 crores before separation to Rs. 21.55 in 1939. The drop was the result of the loss of nearly 70 per cent of petroleum, the entire production of tin, wolfram, nickel-speiss, ruby, lead and zinc ores and the loss of a large part of copper and silver.

The Second World War (1939-45): Difficulties of availability of labour were experienced in the mining industry, as people could get employ-

ment elsewhere during the war-period. This was a signal for a fall in output.

Although the output of coal, gold, mica and copper had fallen, the price was, however, continuously on the rise since 1939, so that the effect of the decline in production was more than offset by the increase in the prices of commodities, particularly of coal, gold and mica. The value of mineral production in 1943 was registered at Rs. 32.36 crores. From 1946, practically all the minerals showed an increase in output, and the value of production exceeded a little over Rs. 49.23 crores in that year.

With the outbreak of war the value of imported minerals and mineral products continued to rise and in 1941, it touched Rs. 41.07 crores. There was a fall in 1942, but it shot up to Rs. 91.58 crores in 1944 and to Rs. 116.71 crores in 1945. The most stimulating effect of the war was the unprecedented rise in the production of iron and steel. The production of pig iron was attained to the full installed capacity of 2.32 million tonnes and that of steel to 1.086 million tonnes in 1941. India exported about 0.508 million tonne of pig iron to Japan, U.S.A., and U.K. The output of iron ore rose to over 3.048 million tonnes.

Aluminium metal was produced from imported alumina in 1943 and from Indian bauxite in 1944. Lead-zinc and emerald mining was started in Rajasthan. Mica mining in Rajasthan also received a stimulus during the war.

Indian Mining Industry on the eve of Independence: The Second World War showed that the establishment of a healthy and sound mining industry was the backbone of all major industries. It required a change in the attitude of the Government towards the industry which had so far been almost neglected. There was no definite policy for the development and utilization of minerals. The minerals were worked in an unscientific manner. Interest had been shown only in the high grade and easily accessible and mineable minerals and ores to feed as raw materials for foreign industries without any consideration for the conservation or proper utilization of the mineral wealth of the country. Low and marginal grades of ore were dumped along with mine spoils and in several cases even good grades of iron and manganese ores were used as road metal.

Problems of waste, fire, flood, explosions, sound mining practices were lost sight of during exploitation of mines.

Mining leases were granted for any length of time and for any area in disregard to the capacity, technical ability or financial resources of a lessee or to the present or future requirements of the country. The rates of royalty also varied from lessee to lessee. None of these conditions were conducive to scientific development of minerals in the country. Thus minerals which are the real wealth of a nation, and cannot be

replenished by human efforts, were allowed to be indiscriminately worked and depleted.

No attempt was made to beneficiate or upgrade low grade ores to marketable or usable standards though nature had endowed India with the largest reserves of iron ore of good quality in the world. It has small reserves of coking coal (metallurgical quality); yet no thought was given to conserve as far as possible coking coal and use it only for metallurgical purposes. It was freely used for steam raising in locos and in brick kilns. No serious attempt was ever made to locate fresh workable deposits and assess the potentialities of known deposits of minerals in which there was a big gap between the production and existing and future demands of the country. There was no restriction on exports of minerals in short supply. Technical services pertaining to the mineral industry were ruthlessly cut down during the World Depression of 1930.

In short, there was no attempt to develop a self-reliant and self-sustained economy for minerals which could hold out a promise of starting mineral based industries, which would provide to the people a continually rising standard of living, more opportunities for gainful employment and a sense of security and self-sufficiency both in peace and war.

II. Problems and Policies since Independence

National Mineral Policy: The foremost task for the new Government of India was to have a determined National Mineral Policy and to shift the emphasis from the whole-sale export of high grade minerals to the local manufacture, where possible, of finished goods, restricting exports of minerals in short supply and thereby conserving them. The plan was to effect a greater measure of Government control to achieve the desired objectives.

Mineral exploration programmes were now to be directed towards developing the potential mineral wealth of the country to the maximum extent possible, to provide the necessary mineral raw material base for industrialization and to make significant contributions to the national economy through foreign exchange savings and earnings. Thus in relation to this larger objective, scientific, systematic and integrated programme of exploration have become of far greater consequence than a random search for buried treasure.

Problem of Nationalization and Public Sector Undertakings: There are many generally accepted arguments in favour of or against nationalization; but greater need and urge is felt for nationalization in under-developed rather than in industrially advanced countries. Also increasing Government control of private investments, particularly that of foreign capital,

is usually justified on account of the general cost benefit consideration, fixation of priorities, its effect on the country's balance of payments, its control over the development of key or strategic minerals and the need for planned economic development, so that there is a balanced growth of economy, most efficient utilization of capital resources and avoiding duplication or overlapping of efforts. The fear of sudden nationalization hampers the growth and efficient working of the private sector, therefore, if the private sector has to play any part in the industrial activities of the nation and there is no reason why it should not help in the task of nation building, then it is necessary for the State Government to enunciate its policy clearly.

Broadly the principles governing this policy are that the development of the minerals which cannot very well be carried out by the private sector for various reasons, should of course be given priority in the programmes of the public sector undertakings to form a well integrated development plan. Development of minerals of marginal grade which has been neglected by the private sector and development of minerals of strategic importance and mining projects requiring large investments must necessarily be taken up by public sector undertakings. It is also true that policies of any State cannot remain stagnant for a long period; in cases where compelling circumstances necessitate nationalization of any particular industrial unit, the law of the land should provide for payment of reasonable compensation determined by impartial authorities. The State must also reserve its right to bring about such changes in the degree of control of any unit in the public interest as may be considered necessary from time to time.

Regulation of Production: Regulation of production by the State through legislative controls is inevitable to achieve planned economic development. The need for regulation of production may also arise from strategic considerations, lack of adequate known resources of particular minerals, need for conservation of mineral resources for future use and to balance output of a particular type or quality of minerals according to their consumption in certain selected industries etc. For example, in India, known resources of coking coal are very limited compared to those of iron ore; therefore, a need has been felt to peg the production of coking coal to the requirements of the existing metallurgical plants. Similarly, minerals of strategic importance of limited known reserves may be subject to production controls, all the more so when they are likely to be required in substantial quantities in the near future for indigenous industries.

Conservation of Mineral Resources: Mineral resources are wasting assets and yet modern civilization is making more and more use of

minerals necessitating a continuous increase in their production. Therefore, enforcement of conservation measures are essential not only in the interest of a particular nation but that of the whole world. These conservation measures may provide for the systematic exploration, prospecting, mining, milling, concentration, beneficiation, etc., by scientific and efficient methods, obtaining the maximum possible recovery of the subsidiary associated minerals, blending of ore, substitution of some high grade minerals by other synthetic products or lower grade minerals for certain purposes, grant of subsidies and allowances to make fruitful use of the minerals in general. Although selective mining of high grade minerals alone, may yield spectacularly high profits but generally it leads to lowering of valuable reserves and hence may not be beneficial from an overall national point of view. Valuable by-products, although economically recoverable, may not be recovered by mine owners either because of their inability or unwillingness to invest additional capital or because of the possible resultant decrease in rates of profits even though they may be quite just or proper. Thus to conserve the country's mineral resources by elimination of avoidable waste during mining, processing and utilization is considered absolutely essential.

Mineral Beneficiation and Ore Dressing: Some of the vital technical fields have remained unattended for a long time in India, though there has always been a pressing necessity of developing them. Ore dressing is unquestionably one of them having strong bearing on the mineral development of the country; without proper utilization of the so-called low grade ores the mineral industry can never be put on a firm economic footing. This is especially true when we consider that hardly, if at all, the high grade ore could be mined as such, without at the same time, producing a large quantity of low grade or marginal grade of ore. In all foreign countries the case of progress of ore dressing has always proceeded parallel with the mining activities.

India has vast deposits of low grade ore lying untapped, which could be utilized if proper benificiation techniques are employed; and in this respect special attention needs to be paid to manganese ores, coal, mica, chromite, ilmenite, asbestos, kyanite, and atomic minerals.

Grading and Marketing: Mineral resources may be developed either to meet local indigenous demands or for export with or without any treatment, concentration etc., or for both. Production of finished, or semi-finished products from minerals permits the full benefit such as employment opportunities, development of subsidiary industries, considerable enhancement of value and steady market demands etc. In an underdeveloped country like India which is on the threshold of economic and industrial progress, the capacity to earn foreign exchange by export of

finished products is small and the need to import capital goods is great. In order to maintain a proper balance of foreign currency earnings and payments, this gap can only be filled by export of raw minerals judiciously selected for the purpose, keeping the present and future local needs in view. Strict quality control is essential to ensure that substandard minerals are not supplied either for the internal market thereby lowering the efficiency of production units and the quality of their products or for export.

Export-Import Policies: Export-import policy in minerals is deeply related to the foreign exchange situation and other economic considerations, mineral conservation policies, strategic considerations, and known resources of minerals etc., all of which are liable to change from time to time. Therefore, this policy has to be formulated only for short periods. The main object is to encourage development of indigenous industries either for export promotion or for import substitution by, if necessary, protecting them from competition with imported material particularly during the initial stages or giving them assistance by way of reduction in railway freight, royalties and export duty or cesses and payment of subsidies to become competitive in price and quality in any or all foreign markets. Such policies have been framed from time to time by the Ministry of Foreign Trade in consultation with the Department of Mines and Metals.

Safety and Welfare of Workers: Both from the management as well as from the workers' point of view the safety and welfare of workers is very important. O.M.S. (Output per man shift) in India is very low, hardly 0.5 and in many cases just over 0.4. It can certainly be improved by better mining conditions underground, better lighting, adequate ventilation, by providing fatigue removing implements, adequate medical facilities, elementary training in principles and methods of mining, better wages and incentive bonus, better housing, recreation clubs, canteens, pit-head baths, creches etc.

If India has to build and develop the mining industry, there should be no outside political interference or influence on miners' unions. Such influence leads to proliferation of trade unions in the industry. Each mine should have its own labour councils manned by repersentatives of management and workers, where problems concerning the safety and welfare of workers, their wages and bonus, problems of better O.M.S and problems of reducing production costs should be discussed and solutions found for them.

Mineral Policy: A Mineral Policy Conference was held at the beginning of 1947. It unanimously agreed upon the advisability of formulating a well co-ordinated national mineral policy to ensure planned develop-

ment of the mineral resources of the country and to establish a complete technical organization to maintain close liaison among the various ministries and departments of the Government of India as well as to advise them on all matters concerning minerals. As a result of this Conference, the Indian Bureau of Mines was constituted in 1948.

During the first two years of its life, the Bureau functioned as an advisory body. With the passing of the Mines and Minerals (Regulation and Development) Act, 1948, the Bureau was assigned the following functions:

1. Advising the Central and State Governments on all matters relating to the grant of mineral concessions and on the exploration and utilization of the country's mineral resources.
2. Periodic inspection of mines for effecting systematic development of mineral deposits, elimination of waste and promotion of improved methods of mining.
3. Conducting research on the beneficiation of low grade ore and industrial utilization of minerals and mineral products as well as on mining problems in collaboration with other research organizations.
4. Conducting analyses of ore and minerals.
5. Collection and publication of statistics of mineral production, world mineral trade, foreign mining rules and other matters.
6. Assisting the mineral trade in the marketing of minerals.
7. Detailed prospecting of mineral deposits by means of drilling and exploratory mining.

Expansion of Technical Departments: The Geological Survey of India (G.S.I.) which began with a strength of 400 in 1947 was 8,400 strong in 1971. The National Metallurgical Laboratory, the Fuel Research Institute, a chain of other national laboratories and the Atomic Energy Department were established in rapid succession. The Mines Department, now named Directorate of Mines Safety, was suitably expanded to deal with safety of workers in mines.

Minerals being the basic raw materials for industrial development, mining of coal and lignite, mineral oils, iron ore, manganese ore, chrome ore, gypsum, sulphur, gold and diamonds, mining and processing of copper, lead, zinc, tin, molybdenum and wolfram and minerals specified in the Schedule to the Atomic Energy (Control of Production and Use) Order, 1953, were placed in the category of industries whose future development would be the exclusive responsibility of the State under the Industrial Policy Resolution of 1955.

To meet the requirements arising out of the changed conditions after independence several Acts have been passed and rules framed thereunder. Some of the important Acts and Rules are:

1. Mines and Minerals (Regulation and Development) Act, 1948,

substituted by Act 67 of 1957:
(i) Mineral Concession Rules, 1949.
(ii) Mineral Concession Rules, 1960.
(iii) Mineral Conservation & Development Rules, 1958.
2. Mines Act, 1952:
(i) Mines Rules, 1955.
(ii) Mines (Posting up of Abstracts) Rules, 1954.
(iii) Indian Coal Mines Regulation, 1957.
(iv) Indian Metalliferous Mines Regulation, 1961.
3. Coal Mines (Conservation and Safety) Act, 1952:
(i) Coal Mines (Conservation and Safety) Rules, 1954.
4. Coal Mines Labour Welfare Fund Act, 1947:
(i) Coal Mines Labour Welfare Fund Rules, 1949.
(ii) Coal Mines Labour Welfare Office Establishment (Contributory Provident Fund) Rules, 1951.
5. Mica Mines Labour Welfare Fund Act, 1946:
(i) Mica Mines Labour Welfare Fund Rules, 1948.
(ii) Mica Mines Labour Welfare Office Establishment (Contributory Provident Fund) Rules, 1950.
6. Iron Ore Mines Labour Welfare Fund Act, 1960.
7. Iron Ore Mines Labour Welfare Cess Act, 1961.

Mineral Development and Mineral Exploration: Revolutionary changes have taken place in the purpose, scope, tempo and nature of mineral exploration in India after 1947 when the country became independent.

In the field of mineral exploration, the role of the Geological Survey of India relates to the preparation of basic geological maps and the regional investigation of mineralized districts. In addition to conventional geological methods, photo-geological, geo-chemical and geo-physical methods are employed. Ground mapping and aerial photographs in a number of mineralized districts such as the Zawar lead-zinc district, the Khetri and Dariba copper districts and the Singhbhum copper belt have been carried out. The geo-physical surveys, employing seismic, gravimetric, magnetic and electrical methods have been carried out to locate favourable structures for oil as well as in connection with exploration of concealed deposits in a variety of minerals including copper, lead, graphite, pyrites, diamonds, etc.

The activities of the Indian Bureau of Mines (I.B.M.) which came into existence in 1948 are widespread including the introduction of scientific methods of prospecting, exploring, mining and utilizing minerals through systematic and regular inspection of mines, detailed exploratory and proving operations to convert prospects into working mines, research investigations in mineral beneficiation and mineral technology; and the collection, compilation and interpretation of statistical data relating to

all aspects of India's mineral industry, such as production, consumption, marketing, import, export, reserves, grade, and utilization.

A few of the important results of detailed exploratory and proving operations carried out by the Indian Bureau of Mines are given below:

	Mineral	*Reserves proved*
(a)	Coal	4940.29 million tonnes
(b)	Iron ore	959.0 million tonnes
(c)	Limestone & dolomite	88.0 million tonnes 10.2 million tonnes
(d)	Copper ore	100 million tonnes average grade 1% Cu.
(e)	Copper-lead-zinc	0.36 million tonnes, Total metal content 6.24%
(f)	Pyrites	76.2 million tonnes, sulphur content 40% Indicated reserve — 313.9 million tonnes
(g)	Magnesite	12.19 million tonnes, containing about 41 to 46% magnesia.

A separate Oil and Natural Gas Commission has been set up to carry out oil exploration on a major scale in the country. In addition to the conventional methods, the latest methods are employed by the Commission including aeromagnetic surveys, geo-physical surveys and photo-geological surveys. Notable success has already been achieved in the Cambay and other areas in Gujarat.

The Department of Atomic Energy is carrying out extensive radiometric surveys, both on the ground and by air, in their search for deposits of radio-active minerals.

In order to beneficiate any given ore, it is first necessary to undertake systematic research on a representative sample of the ore to evolve a suitable process. It has been rightly said that no two ores are identical in their amenability to beneficiation. These studies should be supplemented by tests on a pilot plant scale to work out the proper flow-sheet and collect all the relevant data which are very necessary for designing a suitable beneficiation plant.

Exploitation of Minerals by the State: In order to exploit deposits of coal, iron ore, copper, diamonds, pyrites, proved by the Indian Bureau of Mines and the Geological Survey of India, the Government of India have set up a number of Corporations in the Public sector. These are:

1. The National Coal Development Corporation (N.C.D.C.) for working coal.

2. The National Mineral Development Corporation (N.M.D.C.) for working minerals other than coal.
3. The Pyrites & Chemical Development Corporation to work pyrites at Amjor (Bihar) and at Saladipura (Rajasthan) for sulphur.
4. The Metal Corporation of India was taken over by the Government of India in 1965 and a new undertaking, Hindustan Zinc Ltd., was set up to run mines and smelters.
5. Copper has been transferred from N.M.D.C. to Hindustan Copper.
6. The Uranium Corporation of India is in-charge of the deposits at Jaduguda Mines in Bihar.
7. The Neyveli Lignite Corporation is now owned and run by the State of Tamil Nadu to mine the lignite deposits at Neyveli.
8. For trading in minerals and metals the Minerals and Metals Trading Corporation (M.M.T.C.) has been established.

A long awaited decision of the Government regarding the conservation of fast depleting resources of coking coal as compared to vast reserves of high grade iron ore in the country, was announced on October 17, 1971, taking over 214 coking coal mines. Bharat Coking Coal Corporation has been formed to work these mines. Non-coking coal mines have also been nationalized and are now worked by the Coal Mining Authority.

III. Survey of Mining Industries

Coal: The workable coal measures of India belong to the Upper Palaeozoic and the Lower Tertiary. Workable coal seams are confined to Lower Gondwanas in the case of the former and in the case of Tertiary the workable seams occur in the Eocene. The Gondwana coals are of bituminous and sub-bituminous quality while the Eocene coals are generally lignite. In the Himalayan mountain area, however, higher rank coals are occasionally met with, the process of maturity having been accelerated by the abnormally high tectonic pressures which accompanied the growth of Himalayas.

The Gondwana coal-fields are spread over Assam, West Bengal, Bihar, Orissa, Madhya Pradesh, Maharashtra and Andhra Pradesh, while Tertiary coal-fields occur in Assam, Gujarat, Jammu and Kashmir, Rajasthan, Pondicherry and Tamil Nadu.

The earlier history of Indian coal mines is somewhat obscure; but the claims that the use of coal is entirely a western fuel introduced into India is untenable in the face of indigenous place names of localities like Damodar, Barakar and Kali Pahari which are still amongst the most important centres of coal mining. All these show that the existence of coal and its use in the area was known long before Summer and Heatly applied for their concession in August 1774, in Raniganj (Bengal).

Coal mining started in 1862 in the Central Provinces (Madhya Pradesh), and in the former Rewa State in 1884. The Singareni collieries went into production in 1887. Coal mines in Upper Assam were opened in 1881, while the Jharia coal-field was opened in 1893. Development of the Jharia coal-field was so rapid that in 1906 production exceeded that of the Raniganj field and India produced over 8.13 million tonnes of coal.

In the absence of railway facilities, expansion of the coal industry was slow for many years. By 1860, the annual output of coal had reached only 37,750 tonnes. Mining methods were primitive and only the outcrop coal was worked to shallow depths. Gins were used for lowering and raising buckets of coal and water. Miners used picks and carried baskets of coal on their heads.

Trends in use of machinery in Coal Mines: The Pulsometer type steam pump was perhaps the first mechanical plant used in Indian mines. A 10 h.p. steam engine was employed in 1852 to raise coal replacing manual labour. From 1900 onwards, simple mining machinery like rope haulages and pumps were introduced. In 1906 the first colliery power station of 400 KVA (kilovolt ampere) was installed by the Bengal Coal Co. at Sodepur. The advent of electricity in the mines was a great technological stride towards mine mechanization. In 1925 out of 810 mines, 108 were using electric power. In 1950, out of 848 working mines, 345 were electrified and had installed electric machinery of the order of 372.000 h p. In 1966, 661 collieries were using electric energy of the aggregate horse power of 610,006.

The use of mining machinery has steadily increased. In 1925, there were 125 coal-cutting machines in use, in 1950 there were 399 coal-cutting machines employed by 120 mines and in 1955, 151 coal mines were cutting coal with 527 coal-cutting machines. In 1960, 199 collieries produced 14 million tonnes of coal by machines i.e. 27% of the total output. The number of coal-cutting machines further rose to 738 in April 1963, and 1,588,939 tonnes of coal was cut by them. While in 1966 the number of coal-cutting machines worked by electricity was 951. The number of mechanical loaders rose from 7 in 1951 to 23 in December 1960, and those of coal conveyors rose from 23 in 1951 to 106 in March 1961, and to 162 in April 1963. In 1960, more than 481,000 tonnes of coal was conveyed by coal conveyors. During 1969 more than 200 conveyors were in operation. Another important feature in mines in India has been the use of more and more of electric safety lamps in place of *mug batties*. By 1966, the number of safety lamps rose to 254.853 out of which 240,647 were of electrical type.

Size of Mine and Pattern of Production: The average annual output of coal per mine in 1925 was 25,000 tonnes. A number of small mines were closed during the general depression in the thirties and the average output increased to 41,000 tonnes. During World War II, as the demand for coal shot up, many small mines sprouted again and the average output per mine registered a fall and was only 27,550 tonnes in 1945. Since 1950, there has been a steady rise in the average output per mine and it has increased from 36,700 tonnes in 1950 to 61,000 tonnes in 1960. Still only 18% of the mines produced more than 10,000 tonnes a month while 32% produced less than 100 tonnes a day or 2,500 tonnes a month and another 18% produced less than 600 tonnes of coal per month. But there are 40 collieries producing more than 25,000 tonnes of coal per month and four of these produce more than 75,000 tonnes per month.

A definite change in the pattern of production is noticeable, as until 1958 only 13% of the total production came from open cast workings while 87% was accounted from underground. But there is a steady rise in the production from open cast workings due to the opening up of new large-scale quarries in the public sector by N.C.D.C. During the next decade or so several other open cast mines will be opened by the public sector to meet the increased production targets. At present, upto 1:3 (coal to overburden ratio) is planned for open cast workings, but this ratio is likely to go upto 1:5. Thus large-scale quarrying may become a permanent feature in Indian coal mining. Now the N.C.D.C. produces over 9 million tonnes of coal annually from its open cast mines. They are semi or fully mechanized, employing power shovels, draglines and dumpers. The dragline employed at Bisrampur open cast mine has a bucket capacity of nearly 30 cubic metres.

Deep shafts are also being sunk for mining coal from deeper horizons and a number of coal mines will be operating at depths of nearly 186 metres in the near future.

Coal and Five Year Plans: Coal being classed as a schedule 'A' mineral, its future development will have to be carried out by the State. The idea of having a master plan for coal mining development in India was prepared by the Chief Mining Engineer, Railway Board, in 1950 showing the actual and potential capacities of different coal-fields and also the estimated requirements of the country. The estimated increased demand of coal during the First Plan period was of the order of only about six million tonnes, which was considered to be met with in the normal production capacity of the industry.

With the Second Plan the position changed considerably as more emphasis was laid on industrialization and to meet its fuel requirements the production of coal had to be increased from 38 million tonnes to 60 million tonnes. To achieve the required additional production of

22 million tonnes, within a period of five years was a stupendous task. The private sector as a whole could not raise 60 million tonnes. The Government had to step in to open out new areas and establish new mines. The additional production was shared between the private sector and the public sector — 12.3 million tonnes and 10.5 million tonnes respectively. An autonomous Government undertaking the National Coal Development Corporation with the eleven old railway collieries as its nucleus was established on October 1, 1956 to accomplish this task. The N.C.D.C. is now operating 52 collieries.

Unrestricted access to under-developed coal bearing areas had to be given to Government and for the purpose of speeding acquisition of coal bearing areas, the Coal Bearing Areas (Acquisition and Development) Act, 1957, was enacted.

Opening out of new mines or for extending the working of existing mines to virgin areas require considerable data regarding the behaviour, attitude, geological disturbances, overburden, thickness, strike and dip of the coal seams, reserves, grade and washing characteristic of coal for planning their opening. Co-operation and assistance was taken of existing technical organizations, the G.S.I. and the I.B.M. The I.B.M. put in all its resources for detailed prospecting of Korba, Kathara, Bisrampur, Jhilimili, Giddi, Talchir, Ramgarh, Kargali, Bokaro and Satpura fields, and supplied N.C.D.C. all the data including the ratio of overburden to coal, and floor contour. To supplement the work of the I.B.M. and G.S.I., the N.C.D.C. also organized a prospecting section. During the Second Five Year Plan, the N.C.D.C. opened 11 more collieries and achieved an annual producton rate of 10 million tonnes. Production from the 11 old collieries was also expanded from 2.9 million tonnes to 3.6 million tonnes.

The private sector did its share and the output of coal reached 56 million tonnes in 1961; the share of N.C.D.C. and Singareni collieries was 10.3 million tonnes.

In the Third Five Year Plan, the target of coal production was fixed at 97 million tonnes, the share of public sector and private being fixed at 37 million and 60 million tonnes respectively. The I.B.M., the N.C.D.C. and G.S.I. have continued detailed prospecting by drilling during the Third Five Year Plan in selected blocks in various coal-fields in Bihar, West Bengal, Madhya Pradesh, Maharashtra and Jammu and Kashmir. As a result of drilling, the I.B.M. has discovered a deposit of coking coal in Chano Rikba area of North Karanpura coal-fields and more than 58 million tonnes of reserves of coal have been proved. The G.S.I. has proved a thick coal seam in Singrauli coal-field. These new discoveries are a valuable addition to the coal resources of the country. The G.S.I. and N.C.D.C. are carrying out exploratory operation for coal in the different coal-fields of Bihar, West

Bengal, Madhya Pradesh, Orissa, Jammu and Kashmir, Assam and Andhra Pradesh to enable the producing organizations to achieve and sustain the production targets for coal envisaged in the Fourth Plan and subsequent plans.

Reserves: Reserves of all grades of coal in seams of 1.4 metres and over in thickness are estimated to be of the order of 43,000 million tonnes within a depth of 609 metres. Inferred reserves are placed at an additional 80,000 million tonnes. Thus the total resources of coal inclusive of proved, estimated and inferred are placed at 123,000 million tonnes. Detailed exploration has shown that the overall position of coal resources in the country is considerably larger. Talchir coal-field alone may contain coal reserves of the order of 90,000 million tonnes.

Though in terms of quantity, coal resources appear to be large, the reserves of selected and grade I coal are limited. This is all the more so in case of metallurgical coal (coking coal). India is endowed with very large reserves of high grade iron ore (above 60% Fe.) whereas the reserves of coking coal suitable for metallurgical purposes have been assessed as 4,600 million tonnes upto a depth of 600 metres and are restricted to the Jharia coal-field in Bihar.

Consequently on shortfalls in the industrial complex of the country there was a setback in the coal production programme, in the Third Five Year Plan. The demand for coal slackened and production in 1965-66 was a little over 70 million tonnes against a target of 97 million tonnes. By the end of the Fourth Five Year Plan period, the requirements of coking coal by the steel plants alone, was expected to be of the order of 23 million tonnes, and 1.2 million tonnes of blendable coal; besides this quantity, another 3.6 million tonnes of coking coal was required for other cokeries. This involved a considerable increase from the current production of about 17 million tonnes. This situation, therefore, called for focussing attention on a measure of conservation of metallurgical coal by pegging the production of coking coal and using it only for metallurgical purposes, scanning the country for other deposits of coking coal, investigating the possibility of producing iron and steel by using non-coking, or coals of lower coking index and washing of low grade coking coal to reduce the percentage of ash.

The Government has, therefore, taken over 214 coking coal mines placing them under a Government undertaking named as Bharat Coking Coal Co. High priority has been assigned to the coking coal programme for the future Plans. In addition to the various coking coal mines already in production, N.C.D.C. will contribute 2 million tonnes each from its two new mines, Sudamdih and Moridih. The non-coking coal mines have also been nationalized and placed under the control of the Coal Mining Authority. To achieve the target of

production of 97 million tonnes both the Coal Mining Authority and the N.C.D.C. are going ahead with their development and production plans. Prior to nationalization the private owned collieries were granted a loan of 35 million dollars by the World Bank for meeting their foreign exchange requirements.

The N.C.D.C. has launched its major schemes with the assistance and collaboration of Poland, France, West Germany, U.S.S.R. and the U.S.A. The British National Coal Board is willing to develop three gassy mines near Bokaro for 3 to 4 lakhs tonnes of coking coal annually. Umrer colliery in Maharashtra and a colliery in Talchir have been opened by N.C.D.C. for an annual production of 1 million tonnes of coal each.

Collieries in Satpura basin near Betul have been developed to supply coal for a super thermal power station near Ghora Dongri in Betul district.

The output of coal during 1970 was 72.51 million tonnes as against 74.21 million tonnes in 1969.

The requirements of coal in 1974-75 have been estimated at 95 million tonnes comprising 26 million tonnes of coking coal and 69 million tonnes of non-coking and blendable coal.

Washing of Coal: Good quality coking coals have been largely exhausted in the Jharia fields and the poorer quality of coals with high percentage of ash have to take their place. Therefore, washing of such coals has become a necessity. Four washeries in the private sector at Lodhna, West Bokaro, Jamadoba and Nowrozabad and five coal washeries in public sector at Kargali, Bogda, Patherdih, Bhojudih and Durgapur have been completed and two more new washeries at Kathara and Bhurkunda will be set up in the public sector. The existing washing capacity and that of the new plant is estimated to be 13.7 million tonnes of clean coal.

The problems *facing* the washeries in India are the distribution of ash in the segregation form in the coaly matter and the disposal of middlings. Unless power stations using middlings are set up near the washeries to improve the economics of clean coal, the cost of washing may become prohibitive when the percentage of clean coal is low in many cases. Again, the capital cost in setting up washeries to meet the entire requirements of coal for the steel plants may run into staggering sum of money in terms of foreign exchange unless the entire plant is designed and manufactured indigenously.

Lignite: Deposits of lignite at Palana in Rajasthan have been worked for several years now and the lignite is in use in the thermal station at Bikaner. The reserves are of the order of 22 million tonnes.

The Indian Bureau of Mines has completed detailed proving operations at Nichahoma in Jammu and Kashmir, and there is a scheme to exploit this deposit.

Neyveli lignite deposits in the South Arcot district of Tamil Nadu are the largest so far discovered. Exploration has revealed reserves of about 2,000 million tonnes of lignite over an area of 259 sq. km. A seam of lignite varying in the thickness from 0 metre to 27 metres occurs at depths of 54 to 75 metres. Under the lignite bed there is an artesian aquifer exerting a pressure of 6 to 8 tonnes per square foot (0.09 sq. m.). A pilot quarry 183 x 183 metres was excavated during 1953-54 and a pumping test was conducted which has revealed that, to control this pressure it would be necessary to pump out 2,05,000 litres of water per minute.

An integrated Lignite Project comprising the open cast mines, thermal power stations of 250 MW to be expanded to 400 MW, a Briquetting and Carbonization Plant with a capacity to produce 380,000 tonnes of carbonized briquettes per annum, besides a number of by-products like chardust, middle oil, phenols and kerosene, etc., a fertilizer plant with capacity to produce 152,000 tonnes of urea fertilizer, using about 0.5 million tonnes of lignite and a clay washing plant has been planned. Regular mining of lignite has been started, overburden is stripped by conventional earth moving machinery consisting of a shovel and loaders and specialized machinery consisting of bucket-wheel excavators and slewable spreaders. Two of the bucket-wheel excavators have bucket capacity of 350 litres; while the other two have bucket capacity of 700 litres. The output of 350 litres bucket-wheel excavators is 611.6 cubic metres of overburden per hour and that of 700 litres bucket-wheel excavators is 1529 cubic metres per hour. The disposal of burden from the mine to the spoil heap is done by belt conveyors and bottom dumpers, and the material is distributed on the spoil heap by slewable spreaders. For excavation of lignite alone, bucket-wheel excavators and belt conveyors are used. The mine is planned for an output of 3.5 million tonnes of lignite per annum (about 13,000 tonnes per day) which is expected to be raised to 4.8 million tonnes per annum when the thermal power station is expanded to produce 400 MW.

The output of lignite in 1963 from Neyveli was 987,174 tonnes, as against 174,805 tonnes in 1962, which rose to 2.56 million tonnes by 1966. The production in 1970 was 3.5 million tonnes. The entire quantity was from Neyveli open cast mine using bucket-wheel excavators. The production of lignite is expected to be enhanced to 6 million tonnes to meet the requirements of the increased capacity of the power station from 400 MW to 600 MW.

Iron Ore: The manufacture of iron from its ore in India can be traced to pre-historic times. It had markets in the Middle East, Egypt and East Africa even before the Christian era. The famous Damascus swords of medieval age were manufactured from the steel imported from India. It is known that at the time of Alexander's invasion (326

B.C.), Indians were as familiar with use of iron and steel in the battle field as the Greeks themselves.

The famous wrought iron pillar at Mehrauli near Delhi bearing an inscription in Sanskrit of king Chandra (identified with, Chandra Gupta II, 5th cen. A.D.) has stood the weathering effect for centuries without showing any sign of rust or corrosion. It testifies to the high quality of wrought iron produced in this country.

Until the close of the 18th century the indigenous iron industry flourished throughout India except in the alluvial plains. Iron was manufactured in local iron smelting furnaces, built of sun-dried bricks plastered with a mixture of earth and cowdung. The capacity of such a furnace in Alwar (Rajasthan) was 250 kg. of iron ore and 210 kg. of charcoal. The yield of iron from one charge varied from 120 to 130 kg. Cadell wrote in 1873 that there were thirty such iron smelting furnaces at work in former Alwar State and they produced nearly 540 tonnes of iron per year. The indigenous industry could not compete with imported iron and steel and eventually died.

Modern Trends: The production of iron on a large scale could not be attained till the beginning of this century, though numerous attempts were made to graft European methods on the local process and to smelt iron ores. The establishment of the Tata Iron & Steel Co. Ltd. (T.I.S. CO.) and the commissioning of the blast furnaces in 1911 and 1912 at Jamshedpur, the inauguration of the Indian Iron & Steel Co. (I.I.S. CO.) furnaces at Burnpur near Asansol in 1922, the completion of the then Mysore Government scheme of manufacturing iron by charcoal at Bhadravati in 1933, and the amalgamation of the Bengal Iron Co. Ltd., with works at Kulti near Asansol and the Indian Iron & Steel Co. in 1936, are important landmarks in the history of iron and steel production in India.

These units, however, did not expand appreciably till independence and the formulation of Five-Year Plans. Apart from the modernization and expansion of the existing steel plants, and doubling of their capacities, three new steel plants at Rourkela, Bhilai and Durgapur were set up in the public sector during Second Plan period. Another steel plant has been constructed at Bokaro in addition to the expansion of the existing public sector units. A capacity target of 10.2 million tonnes of mild steel ingots, 1.5 million tonnes of pig iron and 20,000 tonnes of alloy tool and special steel has been fixed. The requirement for iron ore for the above production targets will be of the order of 20 million tonnes. The output of iron ore was 13.36 million tonnes and 14.92 million tonnes in 1962 and 1963 respectively. Although the Bokaro Steel Plant which was programmed to go into commission during the Third Five Year Plan could not materialize, and the target production of 10.2 million tonnes of steel ingots could not be achieved, yet the production of iron ore reached a figure of 20.065 million tonnes; Goa produced 6.718 million tonnes of

iron ore. It is expected that by the end of 1975, the domestic demand for finished steel and pig iron will be of the order of 8 million tonnes and 2 million tonnes respectively. It has, therefore, been programmed to step up the production of Bhilai steel plant from 2.5 million tonnes to 3.2 million tonnes and complete the first stage of Bokaro for an output of 1.7 million tonnes. In the private sector I.I.S.C.O. is expected to increase its production from 1.0 million tonnes to 1.3 million tonnes. Exports have been envisaged at a level of 1 million tonnes of finished steel and 1.5 million tonnes of pig iron. On the basis of this expansion programme, the capacity of 12 million tonnes of ingot will be reached.

Resources of Iron Ore: The world resources of iron ore are estimated at about 83,000 million tonnes. Actually the resources may be higher in view of the fact that data for U.S.S.R. are meagre, and no substantial work for the estimation of reserves has been done in the under-developed countries.

The reserves of iron ore in India are estimated at 21,000 million tonnes and it falls under three categories — hematite, magnetite and limonite. Detailed exploration undertaken during the Second Plan period on a few deposits has revealed that earlier estimates have been highly conservative. In view of this, the reserve figures indicated above may shoot up, if detailed exploration is carried out of the deposits for reliable assessment.

Extensive deposits of hematite ore occur in the Singhbhum district of Bihar; Keonjhar, Mayurbhanj and Sundergarh districts of Orissa; Drug, Bastar and Jabalpur districts of Madhya Pradesh; Ramagiri and Chanda districts of Maharashtra; Hyderabad and Kurnool districts of Andhra Pradesh; Jaipur, Jhunjhunu and Sikar districts of Rajasthan; Mysore, Bellary and Dharwar districts of Karnataka and Mohindergarh district of Haryana.

The Indian ores are generally of high grade containing more than 60 per cent iron. The ores of Singhbhum-Keonjhar-Bonai area and Bailadila and Rawghat areas are mostly of very high grade containing on an average. more than 65 per cent iron. Redi and Shimoga-Chitaldrug—Tumkur areas, though contain some high grade ore, the proportion of low grade ore is more. Dharwar and Narnaul (Haryana) produce ores of still poorer quality, iron content being 45 to 60 per cent. The poorest ore is from Tamil Nadu (Salem) containing 35 to 45 per cent iron contents. The ore of Rajasthan contains high percentage of iron but it also contains certain proportion of magnetite. The percentage of phosphorus is usually less than 0.77 per cent in most of the areas, though in some cases it goes upto 0.1 per cent or even more. The ores of Haryana (Narnaul) especially contain higher percentage of phosphorous going upto 0.43 sometimes.

The Indian ores are also usually low in sulphur content, being less than 0.03 per cent, though in a few cases it goes upto 0.05 per cent. Only

certain ores of Karnataka and Haryana contain sulphur upto 0.24 per cent. Similarly, silica percentage is usually within 4 per cent, being less than 1.5 per cent in Bihar-Orissa ores. Silica is higher in the Dharwar and Bellary regions of Karnataka and the Narnaul region of Haryana.

Important magnetite deposits have been located in the Guntur and Nellore districts of Andhra Pradesh; Salem and Tiruchirappalli districts of Tamil Nadu; Mandi district of Himachal Pradesh; Shimoga, Hasan and Bangalore districts of Karnataka and Palamau district of Bihar. Of all the magnetite deposits in the country, the Palamau deposits of Bihar are of high grade.

There are good deposits of titaniferous magnetite containing appreciable amount of vanadium in Karnataka, Tamil Nadu, and parts of Singhbhum district of Bihar and Mayurbhanj district of Orissa. The presence of titanium renders the ore unfit for normal steel making except for making special types of titanium steel. Limonite or spathic iron ores are found in the barren measures of lower Gondawana in West Bengal.

Nature has endowed India with the richest deposits of iron ore, production of which has risen from 3.6 million tonnes in 1951 to 4.8 million tonnes in 1956, 10.6 million tonnes in 1960, 28.6 million tonnes in 1969, and to 30.78 million tonnes in 1970. The increase has been due to heavy internal and external demands. Commensurate with the anticipated tempo of industrial development and export trade, the production of 54 million tonnes of iron ore is envisaged to increase to 54 million tonnes, out of which, 22 million tonnes will meet domestic demands and the rest will be exported.

Export Trade: The export of iron ore has received considerable impetus during the last decade. The export of ore which was only 197,005 tonnes in 1951 increased to 1.98 million tonnes in 1956, to 3.2 million tonnes valued at 17 crores of rupees in 1960, 3,390,000 tonnes in 1962 and 7,914,000 tonnes in 1963 (including exports from Goa since April 1963) valued at Rs. 31.5 crores, 15 million tonnes valued at Rs. 87.5 crores in 1969 and 21.23 million tonnes in 1970 and thereby earned foreign exchange amounting to Rs. 118.72 crores.

Japan, the East European and the West European countries are having ambitious programmes of steel expansion. They are turning to India for the supply of ore. The export trade of iron ore is handled by M.M.T.C.

Development Trends: To meet the increased external and internal demands, the general development trend is to establish large mines and to mechanize them.

The National Mineral Development Corporation has developed an open cast mine at Kiriburu, where the Indian Bureau of Mines had proved iron ore reserves, for annual production of two million tonnes of iron ore for export to Japan through the Visakhapatnam port. This

mine has been mechanized right from the mine face to the rail-head loading point. The Table below shows the pattern of development and mine mechanization in some of important iron ore mines.

Name of Mine	*Location*	*Owner*	*Remarks*
Noamundi	Bihar	T.I.S.CO.	At present 50% of the production is realized from mechanized mining. This mine will give 6,000 tonnes of production per day after complete mechanization. This mine has been further developed for an annual production of 2 million tonnes.
Rajhara	Madhya Pradesh	Hindustan Steel Ltd.	The mine is being completely mechanized to produce 7,000 tonnes ore per day.
Kemmangundi	Karnataka	Mysore Iron & Steel Works	Feeding Mysore Iron and Steel Works.
Barsus	Orissa	Hindustan Steel Ltd.	Being mechanized to produce 3 million tonnes of iron ore for Rourkela Steel Plant.
Kiriburu	Orissa	N.M.D.C.	This mine will produce nearly 2 million tonnes of ore for export to Japan.
Bolani	Orissa	Bolani Iron Ore Pvt. Ltd.	Will be meeting the requirements of Durgapur Steel Plant.
Bailadila	Madhya Pradesh	N.M.D.C.	Planned to produce 4 to 6 million tonnes of ore for export to Japan from 1966. The mine will be fully mechanized.

The supply of iron ore to Japan from Kiriburu at the rate of 2 million tonnes per annum started from 1966. It is proposed to increase the current capacity of 2 million tonnes to a level of 4.5 million tonnes during the Fourth Plan. The prospecting of deposits No. 10, 5 and 14 at Bailadila has been completed and a project report to mine 4 million tonnes from this area has been prepared by N.M.D.C. The Bailadila project has commenced supplying ore to Japan. The Kiriburu ore will consequently be diverted to the Bokaro plant after its construction. The export commitment of Kiriburu will then be transferred to Bailadila. The N.M.D.C. is expected to contribute about 14 million tonnes out of the target of 51 million tonnes of iron ore for the Fourth Plan period. The Mysore Board of Mineral Development proposes to raise about a million tonne of ore from the Bellary-Hospet area for export through Mangalore port. The incidence of a good quantity of high and low grade ores in that area provides prospects of even exporting low grade ore in which some of the European countries are interested.

Beneficiation Trends: In iron ore mining, about 30 per cent of total produc-

tion may go as rejects. This means that on an average about 10 million tonnes of iron ore fines would be produced every year, for mining 32 million tonnes of iron ore. This calls for the beneficiation of iron ore rejects by pelletizing, modulizing and sintering. Apart from this aspect, the high limit of 65% iron in the specifications, imposed by the foreign markets, necessitates beneficiation of iron ore to a certain extent. The common impurities in iron ore are silica and alumina which have to be eliminated to meet the blast furnace requirements. The Tata Iron and Steel Co. has installed a washing plant at Noamundi in Bihar to reduce the alumina content. The Company has also installed a sintering plant for treating iron ore fines. The sintered products would be more uniform as regards the composition and size. More sintering plants will come into being when the increased mining of iron ore begins. Hindustan Steel has already set up sintering plants at Rourkela and Bhilai. Almost all the steel plants in India have sintering plants. Their total capacity is about 5 million tonnes. There is only one pelletization plant in the country located in Goa with a capacity of 0.6 million tonnes.

T.I.S.CO. is setting up a pelletization plant at Noamundi with one million tonne capacity to start with: it will utilize iron ore fines and blue dust produced at Noamundi mine.

IV. Petroleum In India

During the present jet and supersonic age the importance of petroleum to a country cannot be over emphasized. It is indispensable to meet the requirements of energy and power needed for defence equipment. India does not appear to have plentiful resources of oil although the search for petroleum in India is almost as old as in most of the advanced countries. The first bore hole drilled for oil in India was in November 1866, by a Calcutta firm at Nohar Pung near Burhi Dhing river in Upper Assam; but it was not until 1889 when Mr. Willie Leova Lake struck oil at depth of 201.68 metres in his very first hole at Makum near Margherita. By 1899, 14 wells were drilled north of Makum in the Digboi area which led to the formation of the Assam Oil Co (A.O.C.) This company maintained its existence for over 20 years during which 80 wells ranging in depth to 609.6 metres were drilled. In January 1921, the Burmah Oil Company took over the management of the A.O.C. providing it much needed financial assistance, technical know-how and refining facilities. In about ten years, production was raised from 70,000 litres a day to 9,00,000 litres. A total of 998 wells had been drilled upto the end of 1962, out of which 400 wells are still producing. The deepest well in this field is No. 898 which has gone down to 2,786 metres. The Digboi oil-field is showing signs of exhaustion and there is no further exploration.

Since 1906, this field has produced nearly 10 million tonnes of crude oil; the production during 1962 was 182,667 tonnes. Till 1954, the Assam Oil Co. was the only concern in India producing oil. With the separation of Burma from India in 1937, India's deficiency in petroleum became apparent and following the partition in 1947, the oil-fields of Potwar went to Pakistan. India was left with the aging Digboi oil-fields whose reserves were gradually depleting.

Origin of Petroleum: It is generally accepted that the formation of oil has taken place due to decay of low forms of animals and plants in the marine sedimentary formations especially clay or mud. Sediments of recent ages *viz.*, teritiary formations are considered more favourable for preservation of petroleum than other older sediments which are more tectonically disturbed and have gone under several geological strains and stresses.

The water, oil or gas accumulated in clayey beds during the course of compression have moved upward into the porous rocks such as sand-stone, limestone, etc., which are called reservoir rocks. In the reservoir rocks, the oil or gas tends to move upward till some obstruction is met due to some change in lithology or faulting. Anticlinal folds or domes are the most suitable homes for oil accumulation. Within these reservoirs, accumulation is governed by the buoyancy of the fluids, the lighter ones moving upward, the heavier ones gravitating to the lower levels. Thus, generally in all oil wells, water is found at the bottom, oil in the middle, and gas at the top.

In India, nearly 10,36,000 sq. km. are covered by marine sediments of recent origin besides off-shore coastal tracts which can be called the potential home of petroleum. This has to be proved by intensive geological, geophysical surveys and by wild cat drilling. The recent surveys have shown that suitable oil reservoirs exist at a depth of over 3,000 m. in the Assam valley. To find oil at such great depths requires a great deal of surface work in deciphering the geological structures suitable for accumulation of oil.

Setting up of Oil and Natural Gas Commission: A delegation headed by the then Minister for Mines and Fuel, K. D. Malviya, visited in 1955, oil fields in the U.S.S.R., Netherlands and Rumania to study the organizational methods and techniques in oil exploration, exploitation and oil refining. Oil industry being capital intensive, its operations are complicated and in this respect it is different from a normal industrial organization in India or abroad. It was with this background and also with a view to intensifying the search for mineral oil, that the delegation recommended to the Government of India the establishment of a separate commission for exploration of oil in India. A separate department for the explora-

tion of oil and natural gas was established in 1955, with headquarters at Dehradun. In 1958, it became a Commission and then an autonomous body.

Discovery of Oil in Gujarat: Three oil structures have been discovered by the Commission in the Lunej (Cambay) area, Hazat (Ankleshwar) and Sertha (Kalol) in 1958, 1959 and 1961 respectively.

The Lunej structure initially located by geophysical investigations in Cambay is approximately 20.7 sq. km. in extent. The first site for drilling was selected in the south-western area. After necessary preparations drilling operations started in 1958 with a Russian Uralmash — 3 D turbo drill. The well was drilled to a depth of 2,191 metres in 91 days. In the course of drilling, several horizons of oil and gas sands were encountered at varying depths, between 1,310 and 1,710 metres. The oil was accompanied by gas under high pressure. In the second well which was drilled about one and a half kilometre to the east, the presence of oil and gas was confined in various horizons at and below 1,500 metres. The seismic work has shown that the total area of the Cambay field, is about 53 sq. km.

Attention was next directed to a larger structure covering more than 32 sq. km. near a gas show nearly 134 kilometres south of Cambay at Ankleshwar. The first well was spudded in 1959 and drilled to a depth of 1,960 metres. Oil and gas shows were observed in May during production testing.

In 1960, survey was begun of the Kalol area, some 24 km. north of Ahmadabad. Kalol well No. 1 was drilled by an Indian team assisted by Soviet experts. The well reached a depth of 1,800 metres. A perforation test was carried out in June 1961, and oil flowed freely from the well.

The total number of deep wells drilled till the end of 1962 in Gujarat is given below:

Area	*Oil*	*Gas*	*Dry*	*On test*	*Completed*	*Under Drilling*	*Total*	*Metres Drilled*
(1) Ahmadabad a) Kalol	3	—	—	2	3	1	6	9,515
b) Sanand	—	—	—	1	1	—	1	1,850
c) Wavel	—	—	—	2	2	—	2	3,847
(2) Ankleshwar (including Kosamba).	50	—	4	2	56	3	59	80,522
(3) Cambay	3	14	9	6	32	—	32	66,504
(4) Olpad	—	—	—	1	1	—	1	2,054
Total Gujarat	56	14	13	14	95	4	101	164,292

The Oil and Natural Gas Commission (O.N.G.C.) has drilled 200 wells in

Ankleshwar oil-field upto 1969; of these 170 are oil producing, 12 gas producing and the rest are dry.

Firm estimates of oil reserves in the oil-fields of Gujarat which have been drilled by O.N.G.C. have now been made upto the end of 1966. The estimated reserves in the three fields are 68.80 million tonnes which are sufficient to feed a 3-million tonne refinery set up at Koyali near Baroda. The reserves of natural gas are estimated at 67.25 thousand million cubic metres.

The commercial production of oil from the Ankleshwar field started in 1962 and has now attained an annual rate of production of 7,30,000 tonnes. The crude goes by rail to the Bombay refineries, but when the Koyali refinery is completed, it is expected to raise the production to 2 million tonnes to feed that refinery. The production was stepped up to 9,500 tonnes per day in 1968-69 and to 10,000 tonnes per day in 1969-70.

By the end of March 1970, the Commission had produced and despatched a total of 15.13 million tonnes of crude oil from the oil-field of Gujarat. Of this 4.9 million tonnes were supplied to Burmah Shell and Esso Refineries in Bombay and 10.23 million tonnes were supplied to Indian Oil Corporation (I.O.C.) Refinery at Koyali in Gujarat. The Commission at present supplies the entire demand of crude oil of Koyali Refinery in Gujarat. The Commission during 1969-70 produced and sold 3.64 million tonnes of crude, 3.45 million tonnes from Gujarat and 0.19 million tonnes from its fields in Assam, and sold also 333.1 million cubic metres of gas, valued at Rs. 38.58 crores as against 34.80 crores in the previous year.

Exploration for Oil by O.N.G.C.: Detailed deep drilling exploration had been started in 1958 in several areas in Punjab *viz.* Adampur, Hoshiarpur, Janauri and Jawalamukhi. Oil has not so far been struck in any well; only gas came out from one well.

Further exploratory drilling in Punjab is in progress. The O.N.G.C. has entered into an agreement with the French Petroleum Institute for oil exploration in the Jaisalmer area of Rajasthan.

Besides these, detailed geological and geophysical surveys are being carried out in the Kaveri basin in Tamil Nadu, Uttar Pradesh., Bihar, Punjab, West Bengal, etc.

During the Third Plan, about Rs. 202 crores were provided for oil exploration and development by the Oil and Natural Gas Commission; greater emphasis was laid on oil exploration and production.

The O.N.G.C. organized, on an average, 14 geological parties, 11 gravity cum magnetic parties and 20 seismic parties and 8 electro-loging parties to intensify their search for oil in area where sedimentary rocks are suspected to occur below the surface. Extensive geological mapping, line-traversing and reconnaissance were carried out in alluvial

areas of Jammu and Kashmir, Punjab, Himachal Pradesh, Uttar Pradesh, West Bengal, Assam, Orissa, Madhya Pradesh, Rajasthan, Gujarat, Tamil Nadu and the Andaman Islands.

Gravity and magnetic work was carried in almost all the alluvial regions of the country where sedimentary were suspected to be covered with soil. Several thousand Gravity and Magnetic (G.M.) stations were measured.

Seismic work was carried out in Andhra Pradesh, Assam, Bihar, Gujarat, Rajasthan, Uttar Pradesh., West Bengal, Tamil Nadu and Jammu and Kashmir. One seismic party operated in the area of Gujarat. Exploratory and deep drilling was caried out where structures were found favourable for oil. By the end of 1966, the O.N.G.C. had completed 458 oil wells of which 237 were oil bearing, 40 gas bearing, 94 dry, 18 water injection wells and 69 were under test.

Out of 458 wells, 392 were drilled in Gujarat, 47 in Assam (Rudrasagar area), 7 in Punjab, 3 in Uttar Pradesh., 2 in Bihar, 4 in Rajasthan and 3 in Pondicherry.

During the Third Plan O.N.G.C. estimated the reserves of oil in Gujarat and their area in Assam.

Discovery of Oil at Rudrasagar and Sibsagar, Assam: Exploratory drilling operation was started at Rudrasagar and Sibsagar in 1961 where a favourable structure had earlier been established by Seismic Survey. Oil flowed freely from the first well. Out of five wells drilled, four at Rudrasagar encountered oil, while one near Sibsagar was dry. The production from this oil-field started in 1966 when 0.02 million tonnes of crude was produced. The O.N.G.C. produced 0.15 million tonnes of crude oil in 1968-69 and 0.19 million tonnes in 1969-70. The crude produced from this field was supplied to Gauhati and Barauni Refineries of I.O.C.

Exploration of Oil in West Bengal — Indo-Stanvac Petroleum Project: After an aeromagnetic and grounds survey by the Standard-Vacuum Oil Company, in collaboration with the Government of India, a drilling programme was initiated in 1953. After drilling ten test wells (all dry) the project was abandoned.

Discovery of Nahorkatiya Field—Birth of Oil India Ltd: The geophysical work in upper Assam was undertaken by the Assam Oil Company as early as 1925. Seismic work was carried out later, which confirmed that Barail rocks at a depth of about 3,048 metres from which oil is supposed to have migrated into higher Tipam sands in Digboi are also oil bearing in Nahorkatiya and Hugrijan areas. Drilling followed and the first oil producing well was completed in 1953. Oil was found in several sand beds between 2,865 to 3,108 metres. At Moram, about 32 km. further west of Nahorkatiya, the first test well was successfully completed in 1956 and the existence of oil was proved in the same rock formations.

Further extensive drilling in the Nahorkatiya-Hugrijan area where 30 wells were completed by the end of 1957, proved this potential oil-field.

The discovery led to the formation of Oil India Limited (a rupee company) in 1958, on a 50-50 partnership basis between the Government of India and the Assam Oil Company. Taking into consideration the development of the oil-fields, Oil India Limited was entrusted with the job of constructing 1,160 km. long pipeline for carrying crude from these fields to public sector refineries located at Noonmati in Assam and Barauni in Bihar.

Oil India has also acquired the rights to explore an area of 4,947 sq. km. in the north-east of Assam. Till March 1968, Oil India had completed 160 wells in the Nahorkatiya and Moram areas out of which 106 were oil bearing, 8 gas bearing and 16 had proved dry while the rest were awaiting further testing.

Laying of the Pipe Line: The problem of transporting crude oil to a distance of 403 km. from Nahorkatiya to the Noonmati refinery in Gauhati, Assam and to the Barauni refinery in Monghyr, Bihar, a distance of 1,160 km. from Nahorkatiya, crossing many rivers on the way, was completed in February 1962. Crude is supplied to Digboi and the Noonmati refinery, and it will feed the Barauni refinery when it goes into operation. The production will, then, be stepped up to 3 million tonnes of crude a year.

Refineries: There are in all five refineries in production at present, out of which four (2 in Bombay and one each in Vishakhapatnam and Digboi) are in private sector. The fifth refinery at Noonmati in Assam, is the first one in the public sector. The sixth refinery at Barauni on the northern bank of the Ganga in Bihar will go into production shortly. The Government of India has constituted a separate organization 'Indian Refineries' to run these public sector refineries. Another refinery is coming up at Koyali in Gujarat; but this is likely to be looked after by the O.N.G.C. The refinery at Noonmati has been constructed by the Rumanian Government and the Barauni and Koyali plants are being put up with Russian assistance. The three public sector refineries will have a total capacity of 4.5 million tonnes which will be expanded to 7 million tonnes, Gauhati to one million and Barauni and Koyali to 3 million tonnes each.

The Government of India in May 1963, concluded an agreement with the Phillips Petroleum Company of America to set up a refinery in Cochin with a capacity of 2.5 million tonnes. The plant is likely to cost Rs. 35 crores. It will be jointly owned by the Government of India and Phillips Co. It will be located at Ambalamukal on the eastern bank of Chitrapurha river, 16 km. from Cochin port.

Details of the refineries with their present and envisaged capacities are tabulated on next page:

Company	*Location*	*Cost Rs. (crores)*	*Year of Estt.*	*Capacity in million tonnes during 1962*	*Envisaged expansion capacity*
Assam Oil Company	Digboi	NA	1901	6.45	—
Burmah-Shell	Bombay	26	1955	3.50	3.73
ESSO	Bombay	17	1954	2.40	2.50
Caltex	Vishakhapatnam	15	1957	1.05	—
Indian Refinery	Noonmati	17.7	1962	0.75	1.23
,,	Barauni	40	1963	2.00	3.00
O.N.G.C.	Koyali	30	1964—65	2.00	3.00
Phillips	Cochin	35	1965—66	2.50	—

All public sector refineries are to meet the supply of crude oil from the newly opened oil-fields in Assam and Gujarat.

The Government of India have set up another agency, Indian Oil Ltd., for distribution of petrol and petroleum products produced from refineries in the public sector and also to import and market deficit kerosene and middle distillates. This company was formed in 1959, with an authorized capital of Rs. 12 crores. It has already entered into a contract with an export organization of the U.S.S.R. for the import of 1.9 million tonnes of products mainly kerosene and high speed diesel.

Oil in India's Economy: The per capita consumption of petroleum in India during 1962 worked out to 18 litres per annum, as against 3,000 litres in U.S.A., 730 litres in U.K. and 238 litres in Japan. The production from indigenous sources (Digboi, Nahorkatiya, Ankleshwar) contributed only 13 per cent to the total requirements in the country during 1962. Even on the basis of 100 litres per capita consumption, 50 million tonnes crude oil per annum will have to be produced. It is essential, therefore, to intensify exploration in a number of potential areas to meet the widening shortage. At present India is importing the bulk of her petroleum and petroleum products. The potentialities of newly discovered fields so far known are capable of producing about 6 to 7 million tonnes annually which is hardly sufficient to meet even the 40 per cent of her total requirements. Recently oil has been struck during off-shore drilling at Bombay High. The indications are promising although it is too early to predict its potentialities.

Other Oil Possibilities in India: It is now well established that marine sediments of Eocene to Upper Miocene age are the source rock of petroleum. In the newly discovered fields in the Gulf of Cambay, Ankleshwar and Kalol, the oil bearing beds are of Eocene age.

There seem to be two distinct possibilities of oil belts in India, the one running from the Potwar Plateau (Attock oil-fields) through Punjab, Uttar Pradesh, Bihar, Bengal, Assam and veering round to Burma, and

the other belt from the Sui Oil Gas belt (in Pakistan) through the Gulf of Kutch to the Gulf of Cambay. As a matter of fact, almost all the areas in the western and eastern coasts where marine transgression has taken place in post Cretaceous age should be searched for petroleum. Such areas are north of Goa on the West Coast, Kerala, Tiruchirappalli and Thanjavur in Cauvery basin in Tamil Nadu, the Pondicherry area, the Godavari delta in Andhra Pradesh and the Orissa coast and the Andaman and Nicobar Islands.

Recently, a geophysical survey conducted in North Bihar with West German collaboration has revealed interesting results, which are now to be confirmed by deep drilling. The entire area consisting of Jaisalmer, Bikaner and Ganganagar in Rajasthan, areas between the Sutlej and Beas rivers in the Punjab and the foot-hills of the Himalayas in Uttar Pradesh, Bihar and the alluvial basin of West Bengal deserve thorough investigation. The O.N.G.C. has entered into an agreement with the French Petroleum Institute for oil exploration in the Jaisalmer area.

An institute of Petroleum Technology has been established in Dehra Dun, which will help solving many problems concerning oil technology.

V. Other Minerals

Antimony: A few occurrences of stibnite (Antimony Sulphide) are known and the most important one is that of Bara Shigri glacier in Lahaul area, Himachal Pradesh. The deposit was leased to a private party at one time. The G.S.I. carried out investigations for stibnite (antimony ore) by detailed mapping and drilling in the Chamboli district of Uttar Pradesh. They drilled 111.78 metres and collected 9,682 tonnes of stellerite. Exploration has been temporarily suspended since December 1966. The Star Metal Refinery Ltd., with its plant at Vikhroli, Bombay, is the only producer of antimony metal from imported antimony ore from Bolivia, Thailand and Australia. The annual requirement of antimony metal which is mainly consumed in the manufacture of antifrication metal, printing and type metal and storage battery plates, etc., is of the order of 850 tonnes. Antimony Trisulphide ($Sb_2 S_3$) is used in the manufacture of safety matches, in cartridge percussion caps and for producing dense white fumes in military manoeuvres. Antimony Penta Sulphide ($Sb_2 S_5$) is used in the manufacture of paints and in vulcanizing rubber. There is no indigenous production. The plant at Vikhroli produces antimony metal from imported Antiomony Sulphide ore after beneficiation and smelting. The installed capacity is 1,000 tonnes per annum which is sufficient to meet the country's requirements.

The quantity of antimony metal produced from the imported Antimony Sulphide ore during 1960-1970 is given below:

Year	1960	1966	1967	1968	1969	1970
Import of Antimony Sulphide ore (in tonnes)	1,214	2,110	1,528	1,733	1,636	699
Production of antimony metal (in tonnes)	821	854	901	812	637	526

Apatite and Phosphate Rocks: Apatite is used in the manufacture of high phosphorous pig iron. Apatite and other phosphates are the chief raw materials for the manufacture of superphosphates. Apatite mines are worked in Singhbhum (Bihar) near Ghatsila. In the Kasipatnam area of Andhra Pradesh, apatite occurs in thin veins. Only one mine is working in this State while three mines are working in Singhbhum (Bihar). Small quantities of phosphate nodules are also produced sometimes from Tiruchirapalli, Tamil Nadu. All apatite mines are worked manually by open cast mining at Ghatsila mine in Singhbhum district. Apatite occurs in lenses and each lense is worked as a separate quarry. In 1966, a new mine at Kasipatnam was opened by the Fertilizer Corporation of India. The indigenous production is hardly 10% of the requirements, which have to be met through imports from Jordan, Tunisia, Morocco and Egypt. In 1962 production was 29,018 tonnes while imports were 287,609 tonnes. The production in 1963 declined and was only 13,127 tonnes. The production in the years 1966-70 was as below:

Production	1966	1967	1968	1969	1970	*Year*
	16,275	11,631	6,695	9,316	15,768	*Tonnes*

Asbestos: Deposits of asbestos are worked in Andhra Pradesh, Bihar, Karnataka and Rajasthan. Except asbestos produced from Pulivendla a taluk of Cuddapah, Andhra Pradesh, which is of a very high chrysotile variety, others are of tremolite variety which has lower tensile strength and is brittle.

Asbestos is used in the manufacture of asbestos cement sheets, fire proof cloth, mineral filler, boiler lagging, etc. India imports large quantity of asbestos to meet her requirements. During 1962, 22,376 tonnes of raw asbestos valued at Rs. 23.33 million was imported from Canada and Rhodesia. Indigenous production reached the peak of 2,712 tonnes in 1963. The production of asbestos was only 82 tonnes in 1948, 719 tonnes in 1953, and 1,181 tonnes in 1958. Asbestos mines in Pulivendla are worked by inclined adits and long wall fill back system. There is one underground mine in Rajasthan which is worked by board and

and pillar system. All the other mines are worked by the open cast method and are manually worked. The details of production and imports between 1966-70 are as below:

Production	1966	1967	1968	1969	1970	*Year*
	6,979	7,014	9,073	9,550	9,834	*Tonnes*
Imports	—	—	25,924	33,609	39,766	*Tonnes*

In some cases pneumatic rock drills are employed for drilling. A few mine owners sort out the fibre and wash the material while others adopt crushing to powder the material.

By the end of Fourth Plan 1973-74 the demand for asbestos is estimated to be of the order of 80,000 tonnes whereas the indigenous production was expected to reach 12,000 tonnes. Rajasthan is the leading producer. The balance had to be met by imports. During 1970, 39,766 tonnes of asbestos valued at Rs. 71.25 million was imported as against 33,609 tonnes valued at Rs. 56.5 million in 1969. Imports are canalized through S.T.C.

Barytes: The Sulphate of Barium also known as heavy spar occurs in veins and fissure veins. Cuddapah, Anantapur and Kurnool districts of Andhra Pradesh and Alwar district of Rajasthan are the important mining centres of barytes. It is also mined in Bihar near Ranchi. In India, barytes is mainly used in the manufacture of paint (Lithophone) and as filler in paper, textile and linoleum industries. Off-colour barytes is used in drilling mud. Barytes is used in the manufacture of barium chemicals.

A total of 37,312 tonnes of barytes was produced and 9,193 tonnes valued at Rs 817,000 was exported during 1963. It is expected that the domestic requirements of barytes by 1975 will be of the order of 75,000 tonnes. The production of barytes in 1969 was 58,722 tonnes which rose to 71,923 tonnes. This shows that production is likely to keep with the demand.

Bauxite: Deposits of bauxite in India are usually found as capping on flat hill tops. Good deposits are found in Ranchi and Palaman districts of Bihar; Sarguja, Raigarh, Jabalpur, Shahdol, Bilaspur, Durg, Balaghat and Mandla districts of Madhya Pradesh; Kolhapur and Kolaba districts in Maharashtra; Belgaum in Karnataka; Salem in Tamil Nadu; Sambalpur and Koraput in Orissa and Saurashtra in Gujarat. Chemical grade having ferric oxide less than 2% and alumina contents 60% is limited to the coastal tracts of Gujarat.

Bauxite is the ore of aluminium metal; it is also used in the manufacture of refractories and abrasives for refining kerosene and lubricating oils, for the manufacture of alum and in the cement industry.

During 1966 four companies were producing aluminium metal. Indian Aluminium Co. Ltd., Aluminium Corporation of India Ltd.,

Hindustan Aluminium Corporation Ltd., and Madras Aluminium Company have installed capacities of 36,170 tonnes, 7,500 tonnes, 40,000 tonnes and 10,000 tonnes respectively. The Indian aluminium industry consumed 155,108 tonnes of bauxite during 1962 and manufactured 53,004 tonnes of alumina, besides 17,607 tonnes of alumina was imported to produce 35,209 tonnes of aluminium ingots. The licensed capacity of aluminium metal during the Third Five Year Plan had been revised to 150,000 tonnes. During 1966 the production of bauxite was 749,948 tonnes against 706,649 tonnes in 1965, while in 1969 and 1970, 1,085,000 tonnes and 1,360,000 tonnes were produced respectively.

There has been a considerable upward trend in the production of bauxite during the years 1965-70, due to rapid expansion of the aluminium industry in India and the increased overseas demand as indicated below:

Year	1965	1966	1967	1968	1969	1970
Output of bauxite in tonnes	706,649	749,948	789,000	939,000	1,085,000	1,360,000
Production of aluminium metal in tonnes	68,968	83,759	96,223	120,000	132,577	16[illegible],081

Japan, Italy, West Germany and Australia are the principal buyers of Indian bauxite.

Although the production of aluminium ore and aluminium metal has substantially increased during the recent years, still the output of aluminium is far below the increasing requirements, which are met by imports. During 1969, 2,091 tonnes of aluminium metal had to be imported at a cost of Rs. 1.27 crores. The foreign exchange earned during the same period by exporting bauxite was Rs. 33.5 lakhs. The rapid increase in the requirements of aluminium is due to its substitution for copper and zinc particularly in electric cables and wires.

The production of aluminium is expected to be stepped up to 220,000 tonnes by 1973-74. Establishment of two smelters with alumina production facilities at Korba and Kona are under constructions. In view of substantial deposits of good grade bauxite occurring in Kutch and Saurashtra an export oriented alumina plant has been proposed in the area.

Chromite: The important deposits of chromite are located in the Singhbhum district of Bihar, Keonjhar and Cuttack districts of Orissa, Hasan and Mysore districts of Karnataka, and in the Bhandara and Ratnagiri districts of Maharashtra. A proper assessment of reserves has not been made but reserves at present are placed at 4.9 million tonnes. Most of the mines are worked by open cast method except Jojohatu in Singhbhum (Bihar) and Sinduali and Tallur in Karnataka which are

worked by underground mining method. Chromite is mainly consumed in the manufacture of chrome steel, stainless steel and production of chromium metal which finds extensive use in electro-plating. Due to its high resistance to corrosion and its ability to stand high temperature it finds extensive use as refractory material for lining steel furnaces. Chrome bricks or chrome magnesia bricks are manufactured for this purpose. In the chemical industry, chromite is used for the manufacture of chromates and bichrome which are required in the tanning, dyeing, ceramic, glass and other industries.

The chromite mining industry also largely depends upon export markets, although there has been some improvement in domestic consumption by the refractory and chemical industries. The bulk of the high grade chromite *i.e.* 48% and above Cr_2O_3 is exported and only medium and low grade are utilized for indigenous requirements. The production of chromite in 1969 and 1970 was 226,568 tonnes and 270,879 tonnes respectively, valued at Rs. 1.20 crores and Rs. 1.44 crores respectively. During the same period 111,620 tonnes of chromite valued at Rs. 2.06 crores and 153,402 tonnes valued at Rs. 3.18 crores respectively were exported. Internal consumption by 1973-74 is expected to be of the order of 100,000 tonnes.

Copper Ore: The Indian Copper Corporation Ltd. mines copper ore from its mines in Mosaboni area of Singhbhum copper belt, Bihar. The Corporation is operating three mines namely Mosaboni, Surda and Patharghora. Mining in all three mines is being done by underground methods by breast stopping with pillar and timber support and scraper mucking. Rocker shovels and electric battery locos are also employed to speed up tramming. The ore is smelted at Corporation's smelter at Monbhandar near Ghatsila, with an annual production capacity of about 9,000 tonnes of fire refined copper. The Corporation has been busy in installing an electrolytic copper refinery of an annual capacity of 8400 tonnes to be initially fed by imported blister copper. The refinery has been commissioned since August 1965. The production of copper in the country is far below the demand, which is rapidly increasing due to industrial development. It hardly meets 10 per cent of the requirements. The production of copper during 1970 was 9,311 tonnes against a requirement of 85,000 tonnes. The demand for this metal is expected to go up to 124,000 tonnes by 1973-74. The Indian Copper Corporation is installing a Flash Smelter thereby increasing its production capacity from 9,960 tonnes to 16,500 tonnes by 1973-74. The requirements of copper may rise to about 300,000 tonnes in the next 10 years or so. Import of 71,730 tonnes was made at a cost of Rs. 23.77 crores during 1962. All-out efforts are being made by the Indian Bureau of Mines and the Geological Survey of India to explore the possibilities of developing new copper deposits in the country. At Khetri, the Indian

Bureau of Mines has proved about 100 million tonnes of 1% copper ore, by deep drilling and the National Mineral Development Corporation has been entrusted with the exploitation of copper deposits at Khetri and Dariba (Rajasthan).

Plans for exploitation and extraction of copper at a rate of 21,000 tonnes of electrolytic copper per annum have been prepared by Western Knapp Engineering Co., U.S.A. who are consultants to the National Mineral Development Corporation. It was decided that instead of going in for the conventional smelter as recommended by Western Knapp, Flash Smelter shall be installed, for which agreement has been signed with OUTOKUMPO of Finland. The proposed capacity of the smelter will be 31,000 tonnes per annum and is likely to go into operation in 1974-75. The Hindustan Copper Ltd. (H.C.L.) proposes to develop Rakha mines in Bihar for an anticipated copper production of 20,000 tonnes by 1978-79.

Manganese Ore: India is endowed with rich deposits of manganese ore. Deposits are located in the Nagpur, Bhandara and Ratnagiri districts of Maharashtra; the Panch Mahal district of Gujarat, the Balaghat and Chindwara districts of Madhya Pradesh; the Singhbum district of Bihar; the Keonjhar, Bolangir, Sundergarh, and Koraput districts of Orissa; the Shimoga, Chikmagalur, Chitaldurg, Belgaum, North Kanara, Bellary and Tumkur districts of Karnataka, the Banswara and Udaipur districts of Rajasthan and the Srikakulam district of Andhra Pradesh.

In India, almost the entire quantity of manganese is mined by open cast method except at Balaghat, Shivrajpur and Gowardhna mines where, to work deeper horizons, underground mining has been adopted. In the Balaghat mine, square set timbering system to support weak ground has been introduced, while the fill back stoping system of mining is being carried out in Shivrajpur mines. Earth moving equipment is employed in Kandri mines of Manganese Ore India Ltd. and at Dongribusurg mine of the Central Provinces Manganese Ore Co. (C.P.M.O.) Women labour is employed in hand cobbing and dressing of manganese ore. For upgrading low grade ores, hand operated jigs are used. At Dongribusurg heavy media separation plant is being operated by C.P.M.O. for beneficiating low grade ore from old dumps.

With the setting up of new steel plants and the expansion of old steel mills and the setting up of 6 ferro-manganese plants, 160,020 tonnes of ferro-manganese was produced during 1972. The internal demand for manganese ore has increased; 497,000 tonnes of manganese ore was consumed in the country in 1962 while 698,000 tonnes was exported. The indigenous demand for manganese ore by 1973-74 was expected to be of the order of 688,800 tonnes of low grade for the production of pig iron and 181,440 tonnes of ferro-manganese for the production of ingot steel.

During the past few years the export of manganese ore has dropped

considerably. The slump in the market has been marked by a downward trend in the price. Free on Board price of 46-48% manganese ore at Calcutta port dropped from Rs. 160 per tonne in 1958 to Rs. 120 per tonne in 1962. India produced 1.226 milllion tonnes and 1.075 million tonnes of manganese ore during 1962 and 1963 respectively; whereas 1.629 million tonnes of manganese ore was produced during 1972 and 862,000 tonnes valued at Rs. 92.43 millions was exported.

Mica: India continues to hold the premier position in respect of mica in the world. Brazil is the only country which is gradually coming up. But ruby quality of block mica is nowhere produced except in India.

The chief producing centres of mica in India are the Hazaribagh, Bhagalpur, Gaya and Monghyr districts of Bihar; the Ajmer, Bhilwara, Jaipur, Tonk and Udaipur districts of Rajasthan; the Nellore district of Andhra Pradesh; the Quilon district of Kerala and the Nilgiris district of Tamil Nadu. Mica produced from Kerala is of phlogopite type while the rest is muscovite of high quality.

There has been a considerable improvement in mica mining technique and several mines have installed pumps, air compressors, pneumatic drills, mine hoist, etc. At Bandro Surangi mines of Christeen Mica Industries Ltd., winding machinery with men hoisting cage has been installed.

Mica is a good foreign exchange earner and about Rs. 10 crores worth foreign exchange is secured every year. During 1972, mica valued at Rs. 20.34 crores was exported. The internal consumption is hardly 900 tonnes a year, but it is likely to increase with the development of electrical industries, and the manufacture of heavy electrical machinery.

Lead-Zinc: Known occurrences of lead and zinc ores are located in the Udaipur, Jaipur and Ajmer districts of Rajasthan; Riasi in Jammu; Almora in Uttar Pradesh; and Cuddapah in Andhra Pradesh.

Zawar mine in Udaipur (Rajasthan) is the only working mine at present. The ore mined is treated at the mine. Lead concentrates containing 70-74% Pb. are transported to lead smelter at Tundu near Dhanbad, where lead and silver are recovered. Zinc concentrates containing 52-54% Zn. are exported to Japan for smelting, and zinc metal is received back in the country.

The Metal Corporation of India, a private limited company, was taken over by the Government of India from October 22, 1965, and a new public sector undertaking Hindustan Zinc Ltd. (H.Z.L.) was formed to run the mines and smelters.

The Metal Corporation of India was installing a zinc smelter at Udaipur with an initial capacity of 18,000 tonnes a year. A new shaft

is being sunk at Mochia Marga hill to develop the mine at deeper horizons, the capacity of the shaft will be 2,000 tonnes run of mine ore per day.

In 1963, 5,920 tonnes of lead concentrates and 10,627 tonnes of zinc concentrates as against 6,384 tonnes of lead concentrates and 9,837 tonnes of zinc concentrates in 1962 were produced. 4,314 and 3,991 kilograms of silver were recovered in 1962 and 1963 respectively.

Another firm Cominco Binani Ltd. was licensed in 1965 to set up a Zinc Smelter at Alwaye (Kerala) with a capacity of 20,000 tonnes of zinc from imported zinc concentrates. The smelter was commissioned in 1967 and zinc metal was produced for the first time in India. From March 1968, the production of zinc ingots started at Debri Zinc Smelter of H.Z.L. The production of zinc in 1970 was 23,410 tonnes as against 23,051 tonnes in 1969 and 20,699 tonnes in 1968. During 1972, 25,227 tonnes zinc was produced.

Gold: Gold has been produced in India from prehistoric times; some of it has been panned from river beds, while the rest must have been mined, as is evidenced by ancient workings some of which extend to 60 metres. At present there are four mines all located in Karnataka namely, Hutti in Raichur district, Nandi Drug, Champion and Mysore in the Kolar Gold Fields in Kolar district. The Champion mine has gone down to over 3,000 metres, but rich gold bearing rock still persists in Glen ore short. Nandi Drug has enough reserves of low grade ore in the west reef while Mysore mine is almost on its last legs.

The auriferous lodes occur in a narrow strip of hornblende schist known as Kolar schist band of pre-cambrian age surrounded by gneisses and granites. Gold occurs in quartz veins or reefs in the field. This field had been worked since 1880 by John Taylor and Sons, a London firm of mining engineers.

Mines in the Kolar Gold Fields (K.G.F.) are very extensive and have the distinction of being among the deepest mines in the world. The total length of drives, cross cuts and levels driven underground is over 1,040 km. Thus mining methods are most intricate. The choice of a particular method depends on the nature of the ore body, the rock pressure and temperature at various depths and the degree and nature of support required to control ground movements.

The following types of stoping are practised in K.G.F. depending on ore body and the local mining conditions:

(1) Chatty stoping; (2) Ordinary underhand bottom stoping; (3) Cup stoping; (4) Sink stoping; (5) Flat back stoping; (6) Stepped back or staggered back stoping ; and (7) Rill stoping.

There is the problem of rock bursts and high temperatures in these mines. Normal rock temperature at 3048 metres is 65°C. Thus preconditioned air at 3.3°C is forced underground. Auxiliary air condi-

tioning plants are also installed to work at deeper horizons.

Output of gold has been declining over the past several years. Gold mines were nationalized in 1957-58 and worked by Kolar Gold Mining Undertaking (Mysore State Undertaking). The Ministry of Finance, Governmnt of India, took over the administration of the Kolar Gold Mining Undertaking on December 1, 1962. John Taylor and Sons are still the consultants.

The production of gold from K.G.F. and Hutti gold mines in 1961 and 1962 is given below :

Unit in Kg.

Name of the mine	1961	1962
Mysore mine ..	1,048	1,106
Champion reef mine	1,610	1,406
Nandi Drug mine ..	1,537	1,780
Hutti gold mine	673	788
	4,868	5,080

During the year 1969-70, 3,47,000 tonnes of ore were mined at the Kolar Gold Mining Undertaking. There was a yield of 1,979 kg. of gold valued at Rs. 1.67 crores at the International Monetary Fund rate. Production during the first nine months of 1970-71 (for which figures are available) was 1,582 kg. of gold valued at Rs. 1.34 crores. The fall in production during the year was mainly due to a brief strike by workers. The targeted production for the remaining three months of the year was 1,07,000 tonnes with an estimated gold yield of 701 kg. valued at Rs. 0.59 crore.

The ore reserves of the undertakings as at the end of 1969-70 were as follows:

	Payable ore reserves	*Low grade ore reserves*
Quantity (in tonnes) ..	17,58,295	22,85,095
Grade (gm. per tonne) ..	11.368	6.38

Minerals for Atomic Energy: Uranium, radium and thorium are the chief fissionable elements. The most important source of uranium in India are the ancient metamorphic rocks, the grade is low. Beach sands of Tamil Nadu, Kerala and Maharashtra are important sources of thorium occuring in association with monazite. Monazite concentrates also contain 0.3 to 0.35 per cent uranium. A mine is being developed in Bihar for the production of uranium.

Other minerals like beryllium and lithium ores are found in large quantity as beryl and lepidolite (lithium mica) in pegmatites of Bihar and Rajasthan. On the whole, India possesses enough resources of atomic minerals.

Other Minerals: The production of other minerals like gypsum, limestone, dolomite, feldspar, magnesite, steatite, silica, salt and industrial clay has shown a spectacular rise. The expansion in the domestic fertilizer, cement, refractory, chemical, glass and ceramics industries during the Second Five Year Plan, has created large demand for these minerals. Mica, kyanite, ilmenite, sillimanite and barytes still depend almost entirely on the export market. The domestic consumption of sillimanite will, however, increase in view of the installation of a sillimanite refractory plant by the Assam Sillimanite Company Ltd., at Ramgarh in Bihar.

Although India's mineral production has shown a steady rise in recent years, much more remains to be done in the field of exploitation, processing, blending, utilization, beneficiation and manufacture of various products. The mining industry has to be modernized and equipped with the latest machinery. If our mining industry is to survive in this competitive age, we must think in terms of reducing the cost of production and large scale exploitation. On account of lack of capital resources and foreign exchange the Indian mining industry is lagging behind.

Since India has the world's largest reserves of iron ore and is surplus in many other minerals, export of minerals could make a big contribution to foreign exchange earnings.

ANNEXURE I

Trends in the Value of Mineral Production, Mineral Exports and Imports

Year	*Value of total mineral production* (Rs. million)	*Value of mineral exports* (Rs. million)	*Value of mineral imports* (Rs. million)
1948	693	N.A.	N.A.
1949	742	,,	,,
1950	834	,,	,,
1951	1,075	351	52
1952	1,080	375	51
1953	1.128	475	57
1954	1,025	357	81
1955	1,070	370	110
1956	1,255	500	97
1957	1,293	641	94
1958	1,383	460	80
1959	1,412	470	102
1960	1.610	674	108
1961	1,772	658	111
1962	2,081	602	149
1963	2,373	691	158 (419)
1964	2,473	805	111 (327)
1965*	2,839	805	205 (307)
1966	3,201	1,121	343 (384)
1967	3,665	1,399	661 (579)
1968	4,077	1,013	655 (N.A.)
1969	4,285	1,690	650 (422)
1970	4,296	2,011	682 (1,024)

Figures in brackets indicate the value of crude petroleum imports.

*From 1965 onwards the value of production includes the value of minerals produced in the Union Territory of Goa, Daman and Diu and also of petroleum and natural gas, but the total value does not include the value of minor minerals and atomic minerals produced in the country.

Trends in Production of Principal Minerals and Metals in India after Independence

Sl. No.	Name of Mineral	Unit of Qty.	Year 1948	1951	1956	1961	1966	1970	Project Demand 1973-74	Number of mines in '69
	Minerals									
1.	Apatite	Tonnes	1,114	416	6,785	20,140	16,275	15,768	4,500,000	4
2.	Asbestos	"	82	518	1,230	1,473	6,979	9,834	80,000	40
3.	Barytes	"	23,143	10,471	6,315	15,914	52,608	71,923	70,000	57
4.	Bauxite	"	20,663	67,047	91,225	476,000	750,000	1,360,000	2,600,000	39
5.	Chromite	"	23,143	16,702	52,386	48,785	77,770	270,879	100,000	7
6.	China Clay	"	41,000	69,000	155,000	383,000	200,740	202,000	200,000	103
7.	Coal	000 Tonnes	30,120	34,430	39,280	56,060	67,974	72,614	93,500	800
8.	Lignite	000 Tonnes	29.6	30	26	63.765	232	3,545	6,000	1
9.	Copper ore	"	322	369	386	423	459	518	..	6
10.	Feldspar	Tonnes	987	3,385	3,909	9,860	27,972	29,255	33,000	43
11.	Fire Clay	000 Tonnes	121.7	112.6	139	283	470	509	1,180	87
12.	Gypsum	000 Tonnes	79	204	854	866	1,294	883	1,700	96
13.	Ilmenite	000 Tonnes	229	224	336	174	30.1	—	60	4
14.	Iron ore	000 Tonnes	2,280	3,660	4,900	12,310	20,080	335,455	53,400	200
15.	Kyanite	Tonnes	12,605	42,501	20,135	27,155	63,820	119,000	50,000	9
16.	Magnesite	Tonnes	97,000	117,000	91,700	209,744	232,053	348,962	300,000	8
17.	Manganese ore	000 Tonnes	556	1,292	1,737	1,230	1,622	1.651	2,600	200
18.	Mica	Tonnes	18,100	25,000	28,100	28,340	28,347	22,915	..	477
19.	Pyrites	Tonnes	..	..	..	..	..	26,400	1,670,000	1
20.	Sillimanite	Tonnes	213	4,048	4,637	8,113	10,286	4,562	14,000	5
21.	Zinc concentrates	Tonnes	..	2,110	6,880	5,941	8,900	15,888	..	2
22.	Crude Petroleum.	000 Tonnes	257	259	394	510.8	4,650	6,809	..	..
	Metals									
1.	Copper	Tonnes	5,957	7,083	7,623	8,336	9,438	9,311	124,000	..
2.	Lead	Tonnes	542	859	2,497	3,664	2,479	1,862	97,000	..
3.	Zinc	Tonnes	..	..	..	..	..	23,410	142,000	..
4.	Aluminium	Tonnes	3,421	3,849	6,501	8,336	9,438	9,311	230,000	..
5.	Ferro-manganese	Tonnes	..	23,000	24,031	103,995	137,482	173,198	..	..
6.	Finished Steel	000 Tonnes	928	1,070	1,338	2,816.3	4,492	4,350	..	..
7.	Pig Iron (Foundry)	000 Tonnes	356	287	440	1,084	1,381	1,380	..	
8.	Antimony	Tonnes	..	..	5,696	616	854	526	1,500	..
9.	Gold	Kg.	5,113	6,407	5,932	4,868	3,436	3,241	..	
10.	Silver	Kg.	259	410	2,966	5,941	1,220	1,540	..	..

CHAPTER VIII

INDUSTRIES

I. Industrial Policy Before Independence

The faint beginning of industrial policy in India under the British Crown can be traced to the report of the Famine Commission of 1880. The Commission attributed the frequency of rural distress to the decline of local industries brought about by imports from abroad, and recommended a policy of encouragement to local manufacturers. However, no move was made in this direction. *Laissez-faire* remained the ruling philosophy, though it was more of a dogma than a complete fact. The bureaucratic mind accepted the dogma but was too pragmatic to accept wholly the norms of Government policy derived from Western economic thinking.

The desire to aid the merchant was an important factor in the drive in the 1860's to develop Indian public works. Investment in social overheads, State guaranteed investments in railway and irrigation schemes, extraordinary measures to extend the cultivation of raw cotton, remodelling of land regulations to suit European settlement and investment, expenditure of public funds to encourage European entrepreneurship — these were all examples of judicious interventionism. On the other hand, *laissez-faire* principles were invoked against the infant industries argument in the 1890's over tariff policy and intervention in food trade during famines; progressive taxation was avoided, and a positive role in industrial development was almost unthinkable,* though the State did set up a number of enterprises to meet its own requirements and, after 1908, undertook to enlarge its purchases of Indian manufactures.

Industrial development in the late 19th century was to a great extent a by-product of certain inter-related developments like improved transport and communications, growth of foreign trade and consequent accumulation of commercial fortunes. Railway building and maintenance had effects more far-reaching than opening up of the interior and exposing of agriculture to the winds of commerce. It released some of the latent potentialities for industrial advance.** The coal industry could grow and expand; the development of engineering firms was geared to railway needs. Railway workshops had to be founded

*Sabyasachi Bhattacharya: "Laissez Faire in India", *Indian Economic and Social History Review, January,* 1965.

**Sunil Kumar Sen: *Studies in Industrial Policy and Development of India.* This work is the exclusive source used here for industrial policy on non-tariff matters till 1913.

and these workshops subsequently developed as important centres of modern mechanical engineering. The development and extension of the railways posed the question of the founding of iron works under the agency of the State, and when the Tatas embarked upon steel manufacture, they depended, in the initial years, to a considerable extent, on Government orders for rails. With the extension of the railway system, there arose the demand for bridged and metalled communications.

The strengthening of the British army after the Mutiny led to cons ıuction of barracks, founding of ordnance and army clothing factories and harness and saddlery workshops. In the interests of expanding trade, Government had to devote attention to the extension and maintenance of ports, harbours and docks. There was considerable building activity, and the decentralization of powers to municipal administrations after 1870 and 1883-84 also generated a large demand for water, drainage and sewerage iron works.

Government became the largest single purchaser of iron and steel work and a big buyer of miscellaneous manufactures. The Railway, Military and Public Works Departments made Government a crucial factor in industrial development, handicapped as it was by the absence of fiscal protection and insufficient supply of *entrepreneurs*. In fact, some of the paper mills, woollen, leather, iron and engineering factories were founded in anticipation of Government demands. The ruling class chose to pursue a *laissez-faire* policy but, even within that, there grew up a policy of purchasing local manufactures.

Under the Government of India Act, 1858, the Governor General had to obtain the sanction of the Secretary of State regarding the policy of purchasing stores. India Office maintained a close scrutiny and control over stores purchase policy. From 1858 to 1875 stores were imported exclusively through the India Office and were paid for in sterling. Following silver depreciation, and rising pressure from Indian manufacturers, the rules were relaxed in 1876, 1880, 1883, 1909, 1912 and 1913.

During the second half of the 19th century, a public sector had come into existence. State railways were the biggest undertaking. The Government founded railway workshops, ordnance factories, canal workshops, postal workshops, harness and saddlery factories, cotton gin factories, army clothing factories and printing presses. The possibility of developing iron resources could not be ignored when railways were being constructed and extended. The State engaged in iron manufacture and coal mining. Government factories successfully undertook limited manufacture of iron, steel, building and engineering materials, coal, tools and plant, leather, chemicals and drugs, printing and lithographic materials, scientific instruments, woollen, cotton, linen and silk goods.

In contrast with the philosphy of *laissez-faire* in British India, the

Mysore State Govt. took an active role in the promotion of industrial developments. As early as 1881, its Dewan disputed the law of comparative advantage and promised to give every attention to suggestions for industrial development. By then, the State had a already estblished a savings bank, financed 75 per cent of the cost of laying railways within the State, and created water supply and utility services. A hydro-electric plant was commissioned in 1902, which laid the foundation of future industrial development.*

The evaluation of industrial policy before independence can be divided in three periods, upto 1916, 1916-39 and 1939-46 and under three broad heads, *viz.*, purchases of Government requirements (described as stores in earlier years), State enterprises and controls, and tariffs. The policy with regard to finance and management is dealt with separately under appropriate headings.

Stores Purchase Policy: In the absence of fiscal protection or direct assistance, purchases of Government stores could have played a key role in industrial development. The acceptance of this role, leaving aside its implementation, took a long time.

In December 1862, the Secretary of State for India laid down that all articles manufactured in England should only be procured through the India Office. The question of purchases in India did not arise. The value of purchases went up to £1.54 m., in 1875-76. Purchase of stores in India was first permitted in December 1876, subject to the condition that "nothing except articles of Indian origin shall be purchased or ordered in India unless it can be paid for on delivery after approval there (in India) and that no advances shall be made to any agent or firm for such service." In October 1877, Local Governments and officers were called upon to "suggest and discuss" the steps to be taken to substitute Indian manufactures for European manufactures and to encourage local manufactures.

After the report of the Indian Famine Commission in 1880 and the growing financial problems of the Government following the depreciation of the rupee and a number of disastrous famines, the Secretary of State amplified the objectives of relaxing the Stores Rules: (1) reduction of bills drawn upon Government of India, (2) encouragement of the local purchase and payment for anything which the local market could supply and (3) fostering the development of local industry. In the same year, Government of India issued new Stores Rules laying down that articles of Indian manufacture should be substituted for European articles "whenever it is possible to do, even at some temporary increase of cost." From 1879 to 1883, Government adopted a number of resolutions recommending the substitution of Indian for European manufactures, approving

*Balakrishna: *Economic Development of Mysore*.

contracts for a term of years, listing the local firms which could supply specified and supplementary articles, and called for a careful scrutiny of indents for purchases abroad. As a result, purchases abroad fell slightly from £1.3 m., in 1881-82 to £1.1 m., in 1882-83.

Indigenous Articles: In January 1883, a major policy resolution was adopted: "The Government of India is desirous to give the utmost encouragement to every effort to substitute for articles now obtained from Europe, articles of bonafide local manufacture or of indigenous origin; and when articles of European and Indian manufacture do not differ materially in price and quality, the Government would always be disposed to give the preference to the latter; and the Governor General-in-Council desires to remind all officers of Government that there is no reason why articles manufactured in India should not be obtained locally, even though the raw materials necessary for their manufacture may have been originally imported from Europe. It is most desirable to bear in mind the distinction between articles of European manufacture and articles produced or worked up in India from imported material; the former should not, save in exceptional cases, be purchased in the local market, while the latter should by preference be purchased locally whenever the quality is sufficiently good and the price not higher than the cost of laying down the imported article. There are many articles which may not be immediately obtained in the local market but which can be made in the event of Government encouraging the manufacture."

With regard to iron and steel work, however, relaxation was slow in coming. Moreover, no special agency was maintained in India till as late as 1922 for the purchase and inspection of articles manufactured in India; the purchases were handled by officers of various departments. The value of stores manufactured and purchased in India by the Government of India rose from Rs. 39 lakhs in 1882-83 to Rs. 107 lakhs in 1891-92, Rs. 202 lakhs in 1904-05 but declined thereafter to Rs. 119 lakhs in 1907-08. The articles purchased (including those from Government establishments) included coal and coke, paper and paste-board, building and engineering materials, chemical products, drugs and medicines, cordage and rope, cotton, linen and silk goods, hardware and cutlery, leather and leather goods, paints and colours, oils, scientific instruments and apparatus, wood, woollens, tools, canvas, tin, iron and steel. The purchases of steel, machinery, agricultural implements, iron wire, steel wire, and glassware were insignificant.

Rigid rules were laid down for local purchases of imported stores. Their purchases were more or less restricted to emergency requirements because inspection was difficult and costly. Such purchases were Rs. 41 lakhs in 1882-83, Rs. 36 lakhs in 1891-92, Rs. 46 lakhs in 1904-05 and Rs. 56 lakhs in 1913-14. Local bodies and private demand, rather

than Government orders, enabled the mercantile houses to flourish in business.

Government spent £75 m. for import of stores from India Office between 1882-83 and 1913-14* against Rs. 338 m. spent in India during the same period. The objective of reducing payments in England for stores remained unfulfilled, mainly because the purchases for State railways continued to impose a heavy drain. The manufacture of iron work and machinery was the crux of the problem, as Lord Ripon, the then Governor General, had recognized in 1883. In 1913, Government expressed its satisfaction at having done all that could be done but noted the slow growth and inefficient standards of industrial enterprise in India.*

Even the limited support received through Government purchases proved invaluable. A committee appointed in 1902 to enquire into the paper industry and its supplies at alleged monopolistic prices to Government found that some of the mills could not have started or continued without Government and railway orders. In the case of woollen mills, Government purchases were 87 per cent of total sales in 1885 (mills were exclusively European), declining to 8 per cent in 1905, but the difficult years had been taken care of.

During the second half of the 19th century, India became a large and growing market for the products of the British iron and steel industry, which were imported through the India Stores Office. In 1863, the import duty on iron was reduced from 10 to 1 per cent and machinery was placed on the free list.

Bengal Iron and Tatas: After the failure of Heath's pioneer attempt in 1824 and the subsequent failure of the East Indian Iron Works between 1853 and 1876 due to shortage of capital and exhaustion of charcoal sources, and unwillingness of Government to accept any liabilities, the Bengal Iron Works at Barakar came up in 1876 but Government refused to pledge advance orders to them. The works were purchased by Government in 1881. In 1882, Ripon's Government "accepted as proved that India possesses the means of supplying all her wants in respect of cast iron, wrought iron and steel, and that such supply could be produced remuneratively on a strictly commercial basis." But the Secretary of State took a different view and the Government of India was prohibited from giving any preference to Indian manufacturers when entering into contracts for iron materials. In 1889, the Barakar Works were sold to Bengal Iron and Steel, a sterling company.

Though this Company ran into difficulties in the 1890's and its requests for financial assistance were repeatedly turned down, it was able to secure railway orders and a reduction in the royalties payable on coal.

*See: Op. cit., pp. 24—27.

In 1896, the Company was given a Government contract for the supply of 10,160 tonnes of pig iron and castings annually for 10 years at rates 5 per cent lower than similar materials could be obtained from time to time in England. This concession enabled the Company to do well and by 1901 its annual production of pig iron rose to 25,401 tonnes, of which 10,160 tonnes was supplied to State railways. This relaxation in the mid-nineties coincided with the recovery of the English iron trade from the long depression which had begun in the seventies, and the fact that one-third of the iron and one-half of the steel imported into India were from countries other than the U.K. The coincidence was not a pure accident.

In January 1903, a contract was signed between Government and Bengal Iron and Steel, under which Government agreed to give a subsidy of £1,500 per year (3 per cent on a capital of £50,000) for ten years to be reduced by Rs. 3 per tonne for every tonne of steel purchased by Government. The plant was erected in June 1904 and commissioned in November 1904. It was closed down in 1906 due to inadequacy of orders from Government, railways and private buyers. Its pig iron production continued but when the 1896 agreement expired in 1907, Government refused to renew it.

The Tatas were more fortunate than the sterling company. In 1902, Tata asked for an assurance from the Secretary of State that, "when making purchases, the Indian Government would be willing *ceteris paribus* to give preference to our manufactures over imported material, especially iron and steel". Viceroy Curzon replied in January 1903 expressing the Government's desire to give preference to local production provided the quality was not inferior to and the price not higher than similar supplies obtained through the India Office and that Tata's Company and other manufacturing firms in India would have to stand on the same level. Nevertheless, Tata received Government pledges almost straightway: a guarantee in 1905 to purchase 20,321 tonnes of steel rails annually for ten years, promise in 1906 to purchase as much as possible of pig iron, reduced railway freight rates for carriage of construction materials and plant, and the opening of a new railway line to connect the plant to iron ore mines. The managing agents were satisfied with "the very generous concessions" from Government. The good quality of Tata products helped in securing orders from private railways and engineering firms in Calcutta and Bombay also.

The total capacity of the two iron works, Bengal and Tata, remained, nevertheless, only a fraction of the total amount of iron and steel imported. A large part of the demand was met by mercantile houses (though their supplies were not always of the best quality), thereby promoting commerce, not industry.

Engineering Stores: The engineering industry survived in the initial

years mainly due to port, municipal and private, rather than Government, demand. The relaxation of Stores Rules in 1876 did not help the engineering industry at all, since engineering stores were to be procured exclusively through London. In 1887, in fact, the Secretary of State pointed out the dangers of depending upon local engineering purchases and, in 1888, further asked Government to issue instructions "with a view to limiting to the utmost the local purchase of building materials not produced in India." Local purchases declined from Rs. 3 lakhs in 1882-83 to Rs. 45 thousand in 1887-88 In 1891 some relaxation was made on grounds of economy, not protection, for less important manufactured articles of iron and steel made up in India from unfinished imported articles, but railway supplies were again excluded. From 1882-83 to 1898-99, the value of building and engineering materials, tools and plant, and machinery imported through London came to Rs. 437 lakhs and the materials of another Rs. 60 lakhs were procured from local agents of European suppliers.

Some relaxation in local purchases of engineering stores was effected in 1897 but initial equipment for railways and large engineering projects was again excluded. From 1899 to 1905, a series of relaxations were made: beginning with careful scrutiny of indents before transmission to London through the instance in 1901 that "wheels, axles, springs and drawgear should be indented from the India Office", to the Railway Board orders in 1905 that 25 per cent of all goods stock required for State railways, would be called for in India.

In 1906, the British Government admitted that "local industries must frequently lean to some extent, in the first instance, upon the support of the Government" and that "the system at present prescribed for the purchase of stores does not in practice result in the maximum amount of encouragement which the Government could legitimately give." The matter was referred to a Stores Committee which sharply criticized the stores purchase policy especially in relation to iron and steel and engineering industries. The Committee found that Indian manufacturers were hesitant because of lack of assurance and continuity of orders, that officials suffered from a fear of infringement of the very precisely defined conditions under which purchases could be made in India, and that orders placed locally were largely rush orders. Indian manufacturers were expected to supply an article equal in quality to that obtainable in England "but the work allotted to them was too small to attain a pitch of excellence which had been achieved elsewhere after years of practice." Most engineering products were disqualified because they were inevitably dependent upon imported materials like plates for wagons. In a scrutiny of indents worth £3.3 m., placed on the India Office in 1904-05, the Committee found that orders of £467,000 could have been placed locally.

In spite of insufficient and discontinuous orders from Government, Indian i.e., mostly British-owned, firms succeeded in increasing their business considerably after 1882-83, thanks to the expansion of jute, cotton and tea industries, port and municipal requirements and demand for bridges for railway companies. Firms in Bombay and Calcutta depended mainly on private demand, those in Madras and Upper India on Government.

Swadeshi Movement: In 1909, after some acrimonious debate between the Government of India and London and the launching of the Swadeshi movement, new Stores Rules were promulgated, in spite of a request for their suspension from the Secretary of State, who finally insisted on laying down that local purchases of electric power and lighting plant would not be permitted. The Rules prescribed that preference should be accorded to articles manufactured from imported materials and indents should be scrutinized before transmission to London. The purchase of wheels and axles and springs of rolling stock was not permitted; railway bridges of spans upto 45.75 metres only could be purchased.* The list of approved firms in India was progressively enlarged, from 14 in 1897 to 40 in 1913. These relaxations notwithstanding, there was no appreciable increase in orders for stores produced in India. The value of European stores (engineering and building materials, tools, machinery and plant) procured in India rose from Rs. 15 lakhs in 1908-09 to Rs. 36 lakhs in 1913-14, while purchases of Indian stores rose from Rs. 9 lakhs to Rs. 20 lakhs only.

State Enterprises: "In a previous age, Indian industries had flourished round the thrones of the rulers and had looked to them for support; and the tendency was always to expect from Government a more positive regulation of activity than has been usual in those countries where individualistic ideals have been dominant. With the wave of nationalism which marked the first decade of the 20th century, enthusiasm for industrial advance became general among the educated classes. The acceptance by Government of the role assigned to it was not easily secured; and it was not until after the outbreak of war that Government, as a whole, accepted responsibility for giving active assistance to industries."**

The inhibitions of *laissez-faire* were most obvious in the setting up of State enterprises though they did not prevent Government from establishing assorted works to meet part of its own requirements. The principal advantages which Government had were its capacity to hire and retain

*For the text of the Rules, see Sen: op. cit., Appendix A.

**Clow: *The State and Industry*, 1928.

high grade technicians and to generate its own demand for products. These advantages were barely utilized.

Iron-making was attempted in the 1850's and 60's and culminated in the acquisition of the Barakar Works against the opposition of the Secretary of State. From 1885 to 1889, when Barakar Works were in Government hands, local firms including Jessop and Martin petitioned against the unfair competition offered by the Works and requested that its production be confined to pig iron and cast iron sleepers for railways. In 1889, the Works were sold to Bengal Iron and Steel.

The number of railway workshops rose from 77 in 1901 to 96 in 1905 and persons employed therein from 60,000 to 79,000; they served as nuclei for the growth of mechanical engineering but few Indians received technical training in them.

There were already five ordnance factories in 1889, turning out a high standard of work; the Cossipore factory was the first to manufacture steel in India in 1905. The value of imported ordnance and miscellaneous military stores, nevertheless, came to nearly £10 m., between 1883-84 and 1913-14.

Pioneer factories were started in Tamil Nadu for aluminium, chrome tanning and weaving, and an Industries Department under the energetic Chatterton, a European civilian (later Controller of Munitions and a member of the Industrial Commission) was set up in 1906. Even these aroused the fury of local business; the Madras Chamber of Commerce unanimously and strongly opposed the flotation of industrial enterprises by Government.

Morley's infamous Despatch of 1910 cooled what little official ardour there was for State enterprises:

> "The policy which I am prepared to sanction is State funds may be expended upon familiarising the people with such improvements in the methods of production as modern science and the practice of European countries can suggest; further than this the State should not go and it must be left to private enterprise to demonstrate that these improvements can be adopted with commercial advantage."

Morley's Despatch was not the only discouraging factor. All the various interests were working at cross-purposes. British manufacturers opposed fiscal protection and relaxation of Stores Rules. European manufacturers in India urged relaxation of Stores Rules but opposed State enterprise and State control. Indian manufacturers were critical of *laissez-faire* and unanimously favoured protection, relaxation of Stores Rules, and pioneer (not permanent State) enterprises.

All that was done in pioneering enterprises, technical and industrial education and commercial and industrial information, was due rather to a few far-sighted individual officers than to any considered and general policy on the part of Government. On the eve of the war, four engineer-

ing colleges had been in existence for a generation but they produced civil engineers who were absorbed in Government and did little to foster industries. Technical schools were started in centres where there were no industries and no prospects of the development of industries; candidates too, were often lacking.

Tariff Policy: Fiscal protection could have played only a very limited role in industrial development during the late 19th century. Leaving aside the exceptional case of cotton mills (which got the reverse of protection but expanded and prospered nevertheless), protective tariffs would have in isolation done little to promote industries heavier than cotton under Indian ownership and management, without a definite policy for local purchases by Government of its requirements or for setting up of State-managed or State-financed and promoted enterprises, given the shortage of Indian capital and technical skill for mechanized enterprises. At best, protective tariffs on ferrous and engineering items, had they been imposed against the prevailing climate of opinion, might have brought about a somewhat larger influx of foreign capital into the industries concerned in order to pierce the tariff wall. Even that might have been worthwhile but it did not come about largely because returns from material-based industries, cotton and jute, which required minimum imported skill and large cheap domestic labour were attractive enough to absorb most of the capital inflow.

Under the East India Company, the task of abolishing inland duties was taken up seriously in 1835 and completed in 1844. Though import duties were levied by the different provinces, a fairly consistent tariff was evolved by the late forties. Generally, the duties on raw produce were 3½ per cent and on manufactured articles 3½ or 5 per cent; till 1848, these duties were doubled for goods imported in non-British ships. After 1848, the nationality of ships was ignored but, till 1859, the duty on non-British goods was double that on British goods. After 1859, revenue needs led to the abolition of differential rates, and the general rate of duty was raised from 5 to 10 per cent; the duty on cotton yarn was raised from 3½ to 5 per cent. From 1862 onwards, financial exigencies no longer demanded large revenue from import duties; the duty on cotton piece-goods was reduced to 5 per cent and on yarn to 3½ per cent. In 1864, the general rate was lowered to 7½ per cent.

Free trade as a matter of policy was ushered in from 1875, when Government found itself with surplus revenues. The general import duty rate was lowered from 7½ to 5 per cent, but the duties on piece-goods and yarn were left untouched, which raised a storm in Manchester. The Secretary of State directed Government to abolish the cotton duties as soon as its finances permitted. The cotton duties were partially lifted in 1878 and 1879, mainly from items which were being produced

in India. In proposing these changes, the Finance Member laid down the following principles governing tariff policy:

(a) "That no duty should exist which affords protection to native industry, and as a corollary, that no duty should be applied to any article which can be produced at home, without an equivalent duty of excise on the home production; and also that no duty should be levied except for purely fiscal purposes.

(b) "That as far as possible the raw materials of industry and articles contributing to production should be exempt from customs taxation.

(c) "That the duties should be applied only to articles which yield a revenue of sufficient importance to justify the interference with trade involved by that machinery of collection."

In 1882, Government concluded that it could do without customs revenues and that "the duties still existing caused an amount of friction, scrutiny and interference with trade quite incommensurate with the net revenue they produced." From 1882 to 1894, no import duties were levied, with the exception of duties on arms and ammunition for administrative reasons, liquor, opium and salt (which were complementary to excise policy), and a nominal revenue duty on petroleum which was imposed in 1888. Correspondingly all export duties, except on rice, were also abolished between 1860 and 1882.

The sacrifice of customs revenues which was supposed to bring the classical benefits of free trade to the poor toiling masses of rural India succeeded only in increasing their misery. Local industries declined rapidly—the only major exception was handlooms which expanded due to the greater availability of yarn—and land revenue grew more oppressive, particularly as silver depreciated and the rupee value of Home Charges mounted at an alarming pace. In 1894, import duties were levied again at the general rate of 5 per cent; railway materials and machinery were left free, and the rate was only 1 per cent on iron and steel; the Secretary of State declined to permit any duty on the chief import, namely, cotton piece-goods. By December of the same year, the revenue position necessitated the imposition of a 5 per cent duty on cotton piece-goods and yarn; this was balanced by the infamous countervailing excise of 5 per cent on yarn counts above 20s. The limitation of excise to yarn failed to satisfy Lancashire. Accordingly, in 1896, the import duty on piece-goods was lowered to 3½ per cent with an equivalent countervailing excise on Indian piece-goods, and cotton yarn was admitted free of duty. This level and structure of import duties remained practically unaltered till 1916.

On the eve of the First World War, the cotton mill industry (which was largely but not wholly under Indian ownership and management) could hardly be described as an infant. In 1913-14, India had 271 mills with

nearly 68 lakh spindles and 1 lakh looms. But there was no mill machinery industry. The explanation lay for the most part in the general absence of an engineering infra-structure, fairly consistent decline in the prices of British textile machinery from the 1890's through the 1870's and lack of skills. The industry depended to a considerable extent for its prosperity on sales of yarn at home and abroad which implied a corresponding emphasis on preparatory and spinning machinery, rather than weaving equipment. Since the former was more complex and novel than the latter, the difficulties in undertaking its manufacture were greater. As new Indian *entrepreneurs*, unfamiliar with textile technology, entered the industry in rapid succession, they placed orders for what they believed was the best equipment available. British machinery suppliers like Greaves and Cotton who went into manufacture had no reservations or doubts about their choice.

Industrial Policy 1916-39: The outbreak of the First World War brought about a considerable change for the better industrial policy thinking. The implementation of this change was rendered difficult during the war by the practical absence of engineering and chemical capacity and trained personnel, and later, in the twenties, by the appearance of severe international competition and consequent demoralization of Indian capital, and pressure from British manufacturers to retain the Indian market. Tariff policy, at first for revenue and then for protective purposes, acquired much greater importance during this period though Indian middle class opinion continued to regard it as halting and inadequate. Government store purchase policies also became more explicitly helpful to industrial development and acquired greater significance as private railway companies were progressively acquired by Government. The consistent decline in the prices of imported machinery after 1923 and piecemeal protection to individual industries, however, made entry into machinery industries unattractive. Barring sporadic attempts to finance some industrial units, most of which ended in failure, there was no policy for direct promotion of private projects or setting up of public enterprises to fill up gaps in the industrial structure. Vocal Indian opinion, when not preoccupied with fiscal protection, seldom went beyond muted demand for pioneer factories. Constitutional reforms divested the centre of responsibility for industry and vested it in provinces, which lacked the resources and perspective for sustained large-scale interest in industrial development.

In 1912, the Atkinson-Dawson Committee was appointed to enquire into the means of bringing technical institutions into closer touch with employers of labour and, in 1913, the Morison Committee reported to the Secretary of State on the system of State technical scholarships established in 1904. A real change of policy came about only in 1916 with the setting up of the Munitions Board and the appointment of the

Industrial Commission, both under a common chairman.

The functions of the Munitions Board which came into being in February 1917, were to control and develop Indian resources, with special reference to the needs created by the war, to regulate contracts, to limit and co-ordinate demands for articles not manufactured in India, and to apply the manufacturing resources of India to war purposes, with the special object of reducing demands on shipping. The Board was responsible for the supply of all articles except foodstuffs, medical stores and certain technical stores, to all armies in the East. At the peak of its operations, the Board was buying textiles at the rate of Rs. 2 crores a month and hides and leather worth Rs. 1 crore a month. Besides, it scrutinized all indents for stores and could divert purchases from Europe to India. Priority was generally refused when a suitable substitute could be purchased or arranged for manufacture in a short time. The opportunities so created were brought to the notice of manufacturers with the result that a large number of new branches of manufacture were started. Expert assistance was made available in many cases. Ordnance factories were greatly expanded, and attention was paid to the manufacture of accessories for various industries. The Industrial Commission was so impressed by the working of its twin that it hoped "that care will be taken to preserve such features of this organisation (the Munitions Board) as are properly adaptable to peace conditions."

The Industrial Commission was appointed in May 1916 to examine and report upon the possibilities of further industrial development in India, particularly

(a) whether new openings for the profitable employment of Indian capital in commerce and industry can be indicated;

(b) whether and, if so, in what manner Government can usefully give direct encouragement to industrial development—

(i) by rendering technical advice more freely available,

(ii) by the demonstration of the practical possibility on a commercial scale of particular industries,

(iii) by affording, directly or indirectly, financial assistance to industrial enterprises, or

(iv) by any other means which are not incompatible with the existing fiscal policy of the Government of India.

Questions of tariff policy were excluded from the scope of its enquiries. The Commission drew attention to the extraordinary extent to which the country, with its great industrial possibilities and requirements, was dependent upon outside sources of supply for raw materials and manufactured articles. It found the cause in the fact that export and import trade and a large railway network had been created without an iron and steel complex to support it. Only the obvious need of having repairs done on the spot had led to the establishment of numerous engineering

workshops, without any corresponding equipment for actual manufacture. The direction of industrial development had been predetermined by the existence of a large export trade in raw materials, and by the ease with which most classes of manufactured articles could be imported from abroad. The Commission attributed the import of boilers and prime movers to the absence of a complete system of engineering industries. Lack of familiarity with machinery accounted for the fact that the demand for agricultural machinery was limited to the products of a few small local manufacturers, supplemented by imports worth Rs. 2½ lakhs in 1913-14. India produced 3.048 m. tonnes of raw sugar and imported sugar worth Rs. 15 crores, but the value of sugar machinery imported was only Rs. 4½ lakhs. Similarly, oilseeds worth nearly Rs. 25 crores were exported but import of crushing and refining plant was only Rs. 3 lakhs. Paper imports cost Rs. 160 lakhs while import of paper mill machinery was only Rs. 3½ lakhs.

"These figures", the Commission said "are significant of the exiguity of the efforts hitherto made in India to replace imported articles by the manufacture of indigenous raw materials. On the other hand, the very large value of the imports of machinery for the textile industry is due to the entire absence of any engineering works capable of supplying her needs." It also pinpointed the dependence on imported technologists and engineers and the preference of capital for a safe profit from trade or such well established industries as jute and cotton to a doubtful return from such ventures as metallurgical and chemical manufactures. "The industries based on technical science have been disregarded, because profits in other ways have been easy and assured. The neglect of applied science is, perhaps, the most conspicuous among our administrative deficiencies." Another contributory cause has been absence of a stores purchase organization to counteract "the tendency of indenting officers to place on some recognised authority the responsibility for price and quality."

The Commission listed the main deficiencies as in metals, chemicals*, rubber, superior textiles, leather finishing and cement. The Commission warned that "until they (the recommended industries) are brought into existence on an adequate scale, Indian capitalists will, in times of peace, be deprived of a number of profitable enterprises whilst in the event of war which renders sea transport impossible, India's all-important existing industries will be exposed to the risk of stoppage, her consumers to great hardship, and her armed forces to the gravest possible danger." It recommended that Government should take special steps to facilitate the manufacture of such essential articles as magnetos, incandescent

*These deficiencies and the concerted measures required to overcome them were re-echoed in the Planning Commission's *Notes on Perspective of Development*, 1960-61 to 1975-76, published in 1964.

lamps, ferro-tungsten, high speed steel graphite crucibles, porcelain insulators, chemical glass and certain heavy chemicals, rubber and vulcanite.

The Commission also recommended the creation of Scientific and Technical Service cadres, training facilities, and acquisition of lands for industrial enterprises. Regarding purchases of stores, it favoured the creation of an organization for purchase and inspection under Imperial and Provincial Departments of Industries, the meeting of all indents of Government and railways as far as possible in India, and the setting up of an agency for preparing specifications. As for cottage and small industries, it recommended familiarization with the principles of co-operative credit, small loans from Provincial Governments, facilities for marketing, technical training, and education in the use of new tools and designs.

Post-War Difficulties: In post-war years, constitutional reforms, deteriorations in economic conditions, attractions of protection and political opposition to the creation of new service cadres combined to distract attention from the Commission's recommendations.

The Commission's report was in favour of centralization, but the Reforms of 1919 led to decentralization. The general result was a separation of the spheres of influence of the Central and Provincial Governments in regard to development of industries. The adoption of a policy of protection was, at a somewhat later date, to place the Government of India in a position to assist industries substantially. It was also able to exercise some influence on the development of industries by means of its purchasing activity. In all other directions, its power to advance industrial progress was restricted. Provincial Governments, on the other hand, were unable to adopt protective policies and the comparatively small extent of their own requirements of stores made it difficult for them to make an impact with their purchases. They had to face serious financial difficulties and the two features which the Industrial Commission had regarded as the chief obstacles to progress, *viz.*, "the lack of a definite and accepted policy and the absence of an appropriate organisation of specialised experts" remained after the Reforms. "Much was achieved despite these difficulties" but, in the absence of a uniform all-India policy, the element "of co-ordination was necessarily weak and in consequence it was not always possible to secure the fullest results from the efforts which were made."* The idea that industry was to be a transferred subject but the administration would be in the hands of all-India services proved unpopular, especially since it was feared that the services would be exclusively European. The

*Clow: *The State and Industry*. This is the main source for policy during the twenties.

idea of industrial service cadres was finally abandoned in 1922.

The prospects of industrial development became considerably dimmer before most of the new Industries Departments in the provinces could be effective. Retrenchment after 1922 fell heavily on these Departments, since large industrialists did not need them and the smaller ones were not vocal. At the Centre, the Industrial Intelligence Section disappeared, inter-provincial conferences, publications and scholarships were discontinued. Fortunately, the stores branch was not disbanded as recommended by the Inchcape Committee on retrenchment.

A Stores Purchase Committee was appointed by the end of 1919 to recommend measures to enable Government to "obtain their requirements so far as possible in India." It recognized that the policy of purchasing Indian stores was defeated by the absence of an agency for purchase and inspection and recommended the setting up of a department to purchase and inspect certain stores, particularly oils and paints, leather, textiles and timber and engineering stores for all Central departments except military, railways and public works. Company railways, provinces and States, and municipalities could also employ the Department. The Committee was divided on the question of local purchase of imported goods; the majority was in favour of purchasing imported stores through resident middlemen but the minority was against it.

New rules were published in 1924. The preamble stated that "the policy of the Government of India is to make their purchases of stores for the public service in such a way as to encourage the industries of the country, so far as is consistent with economy and efficiency." Instead of the prices being "not unfavourable," the prices now were to be only reasonable. Subject to certain conditions, purchases of machinery manufactured abroad were permitted in India from branches of approved manufacturing firms. This formed an exception to the principle followed hitherto that Indian goods should be purchased in India and foreign goods in London. The Legislative Assembly passed a resolution calling for a system of rupee tenders for delivery in India, but this was not accepted till 1927 in principle. The new rules did not apply to the provinces.

In 1928, new rules were drafted giving preference, first, to articles produced in India from Indian materials, second, to articles wholly or partially manufactured in India from imported materials and, third, to articles held in stock in India. With certain exceptions, all stores were to be purchased in India and tenders were to be for supply in India against rupees.

In spite of the halving of its budget in 1922 by the Legislative Assembly, and the stoppage of its expansion recommended by the Inchcape Committee (which Government did not accept), the Indian Stores Department dealt with textiles and leather, engineering, hardware and miscel-

laneous articles. It also looked after intelligence, a metallurgical inspectorate at Jamshedpur, and the Alipore Test House and had inspecting offices at Calcutta, Kanpur, Bombay, Karachi and Madras. Its purchases, mainly textiles and leather, went up from Rs. 165 lakhs in 1922-23 to Rs. 373 lakhs in 1927-28, and stores inspected during the same period from Rs. 142 lakhs to Rs. 574 lakhs. But these represented only a fraction of the purchases of Government and railways.

State Enterprises: In the twenties, the Government continued to supply a large (though unquantified) part of its own needs. About 10 per cent of the factory population in the mid-twenties was employed in public factories and a considerable number of minors worked in Government-owned coal and salt mines. The Government of Madras, as before, took the lead in pioneering enterprises and its Industrial Institute conducted a number of experiments, both successful and unsuccessful; projects for ink, soap, fish canning and bone-meal succeeded while adhesives and fruit canning failed; the Institute also demonstrated the successful use of power-driven sugarcane crushing. In Bombay, fish trawling and oil extraction failed, mainly because the fish refused to co-operate; alleged interference with private enterprise led to the closure of a semi-commercial porcelain factory in the J.J. School of Art, Bihar and Orissa failed to set up a projected sugar factory, and its forays into blankets and matches proved unsuccessful. The Punjab model tannery made heavy losses and was closed down in 1927. In Uttar Pradesh the State turpentine factory did extremely well after the transfer of its majority control to private hands, while a bobbin factory had a chequered career even after such transfer. Clow's careful comment on the situation was: "It seems probable that, with the increase of industrial enterprise in India, the field for successful State pioneering factories has contracted and will contract further."

In 1927, the Railway Board was attacked for having ordered too many wagons and it became evident that orders for wagons would be small for some time. This was an industry which had received a guarantee from Government in 1918 of purchase of a specified number of wagons subject to conditions regarding price and quality. This undertaking was withdrawn in 1924 when the industry received protection but remained dependent upon Government. In the course of negotiations with two exclusive wagon manufacturing companies which had been formed as a result of the guarantee, one was taken over by Government.

Some of the progressive Princely States, however, seemed to have taken the recommendations of the Industrial Commission rather seriously. Mysore, Hyderabad, Gwalior, Baroda and many of the Kathiawar States actively financed several large industrial ventures in British India and some of them made special efforts to attract *entrepreneurs* with offers of assistance and concessions.

Mysore followed up its earlier pioneering efforts with the establishment of an iron and steel works based on charcoal in 1923, and factories for sandal-wood oil, buttons and experimental industries like power-driven crushing mills and jaggery manufacture. In addition to outright ownership, the State made loans, gave guarantees, provided research and technical assistance, and participated in the share capital of private enterprises. During 1917-22, according to the Mysore State Gazetteer, the State department of industry "stimulated private initiative and private effort in the installation of machinery for deep well pumping, in the more efficient utilisation of agricultural production by means of power-driven machinery, and the establishment of a number of small organised industries in various parts of the State". These enterprises lost very little money over the years prior to the depression. In the thirties, the State set up a sugar factory and a paper mill as Government companies, carried out preliminary surveys and investigations for a number of projects, and participated in the share capital of a silk factory and granted various kinds of concessions like free or cheap land, power and materials for a number of engineering enterprises.

Hyderabad started an Industrial Trust Fund in 1929 for aid to industries with a capital of Rs. 1 crore; for improvement and development of small and cottage industries, industrial experiments and demonstrations, and economic and industrial enquiries; and for the provision of grants in aid for research work and scholarships for industrial training. Its funds were also used for investment in leading public companies outside the State.

Baroda took some interest in industrial development within the State from the 1880's but most of the assisted enterprises failed. After these failures, the State confined its assistance to financial participation in banking and several well known public companies like Tata Chemicals, etc.

The larger and coastal States of Kathiawar also took a keen interest during the inter-war years in the setting up of cotton mills and various miscellaneous activities like pottery. This interest was more prestigious, than motivated by purely business or economic considerations, though many of these enterprises did well during the Second World War.

Protection: If the Reforms made it difficult or impossible for the Government of India to assist Indian industries by some methods, they were destined to provide the Central Legislature and the Central Government with a method of granting State assistance hitherto untried in India. India became fiscally autonomous in 1919. The Montagu-Chelmsford report said:

"Desiring industries which will give him Indian-made clothes to wear and Indian-made articles to use, the educated Indian looks to the example of other countries which have relied on tariffs, and seizes on

the admission of even free traders that for the nourishment of nascent industries a tariff is permissible. We do not know whether he pauses to reflect that these industries will be largely financed by foreign capital attracted by the tariff, although we have evidence that he has not learned to appreciate the advantages of foreign capital....So long as the people who refuse India protection are interested in manufactures with which India might compete, Indian opinion cannot bring itself to believe that the refusal is disinterested or dictated by care for the best interests of India."

The Fiscal Commission 1921-22 was unanimous in finding that the adoption of a policy of protection was in the best interests of India, but was divided on the extent and scope of protection. The majority favoured discriminating protection for industries subject to three main safeguards: (1) the industry should possess natural advantages, (2) without the help of protection it is not likely to develop at all or not so rapidly as is desirable, and (3) it will eventually be able to face world competition without protection. Claims for protection were to be examined by a Tariff Board independent of political influence. While recommending protection, the Tariff Board was to keep the following broad principles in mind:

(1) Industries that are subject to the law of increasing returns as well as those which are capable of supplying the entire home market should be regarded as possessing additional claims to protection.

(2) Even though the protection of a particular industry should involve injury to the interests of other related industries, the Tariff Board should not withhold protection from that industry, provided that such protection is calculated to result in an economic advantage to the country.

(3) While protection should ordinarily be granted to what are called infant industries, it may also be extended to industries that are in a state of temporary deterioration or atrophy and even to a strong and prosperous industry which might thereby be induced to develop a new branch.

(4) Tariff protection should not ordinarily be granted to new industries.

(5) The rate of protection should be neither too low nor too high, and should be determined primarily in the light of comparative costs.

(6) The Tariff Board should be directed to review periodically the protection given to different industries so as to indicate the desirability of the continuance, or modification, or withdrawal, of protection.

The Chairman and four members did not endorse these safeguards and desired that no safeguard be laid down other than "such discrimi-

nation as may be considered necessary by the Government of India and the Indian Legislature." They wanted the Tariff Board to be semi-political and semi-commercial. Among other main recommendations, the Commission also suggested the abolition of the cotton excise duty (on political grounds), levy of customs duty on Government imports (accepted in 1924), and restriction of Government monopolies or concessions of foreign capital to firms registered in India with rupee capital and having a reasonable proportion of Indian directors and willing to train Indian apprentices. The minority wished to impose these conditions by legislation on all foreign firms establishing industries behind the tariff wall.

The Commission also recommended that raw materials and machinery be ordinarily admitted free of duty and that semi-manufactured goods used in Indian industries be taxed as lightly as possible. Industries essential for national defence and for the development of which conditions in India are "not unfavourable" should "be adequately protected if necessary". Regarding Imperial preference, it suggested that no such general system be introduced but the question of preferential duties on a limited number of commodities could be considered by the Legislature on the recommendation of the Tariff Board. No such preference should diminish the protection required by industries or involve on balance any appreciable economic loss to India. Any preference to be given to U. K. should be granted as a free gift but, in the case of other Empire countries, preference should be granted only on the basis of mutually advantageous agreements. It unreservedly condemned the cotton excise duty and called for the regulation of excise policy solely in the interests of India.

Though Government was agitated over the harm that protection would do to the inarticulate agricultural masses, the necessity of raising revenue had already led to large increases in customs duties so that some industries were already enjoying a fair measure of protection. Annual revenue from import duties had gone up from Rs. 8 crores in the period 1909-10 to 1913-14 (average) to Rs. 12 crores in 1917-18 and Rs. 28 crores in 1921-22. As a proportion of total revenue, import duties rose from 12 per cent in pre-war years to 24 per cent in 1921-22. These increases had not been made uniformly nor had they been made solely with regard to consideration of revenue. To some extent, therefore, the new policy involved the substitution of a tariff scientifically designed to assist industries for one which was arbitrary and irregular in its effects on industries.

The Commission had recommended first priority for protecting the iron and steel industry which was facing severe competition from imports after enjoying the prosperity brought about by war orders. The first Tariff Board made a detailed investigation into the costs of Tata Iron & Steel and the effects of protection on steel-using industries and recom-

mended substantial increases in import duties on iron and steel in various forms and the grant of bounties on steel rails and fishplates and on railway wagons. The burden was estimated at Rs. 1.5 crores per year, over a third of which would be borne by the general consumer, the remainder by public bodies, railways and larger industries. The alternative was extinction of the industry and severe damage to industrial confidence, besides loss of employment of trained personnel and severe loss to the coal industry. When the recommendation came before a special session of the Legislature, members argued, for the first time, the pros and cons of protection, nationalization and advisability of confining protection to grant of bounties. The Assembly deleted the proposal for duty on agricultural implements, and approved protection for three years. Within two months, the company applied again for further duties because of dumping by Continental producers. In January 1925, the previous duties were left intact but the additional protection recommended was given in the form of bounties.

	Duty before April 1924	*Duty approved June* 1924 Rs. per ton	*Duty Proposed November* 1924
Galvanized sheets	30	45	78
Steel bars	14	40	75
Tinplate	40	60	104
Black sheets	17.5	30	52

The duties generally represented 50 to 75 per cent in *ad valorem* terms. Further proposals for bounties were approved in 1925. The cost of protection could not be estimated but the bounties totalled Rs 2.26 crores over the three years 1924-25 to 1926-27 In 1927, the Tariff Board gave the verdict that "the decline in steel prices and the expansion of the market indicate that the protective duties have not proved burdensome, that the trade of the country has not suffered, and that no serious hardship has been caused to the producer of steel or to the general public." The new duties agreed to in 1927 were generally lower, the bounties were discontinued, and the duties allowed preferential rates to British imports. The duties were levied for seven years by which time it was hoped that Tatas would be able to withstand British but not Continental competition. In 1931-32, Tata, Indian Iron and Mysore Iron, the three principal manufacturers of pig iron entered into an agreement to fix prices, regulate output and allocate markets.

The most publicized fiscal measure of the twenties was not the imposition but the removal of a duty as an article of faith. Tariff changes in 1917 and 1921 had made the import duty on cotton piece-goods substantially higher than the excise (though the duty exemption for mill

machinery and stores had been withdrawn) but this failed to make any impact upon business sentiment and organized political opinion. The Government proposal in 1922 to raise the duty on imported piece-goods (as part of the general revision in order to cover the revenue deficit) from 11 to 15 per cent was conditional upon raising the excise from 3½ to 7½ per cent, which the Legislature declined to accept. Consequently, no change was made either in import or excise duty but a 5 per cent duty was levied on imported twist and yarn (which had been on the free list since 1896) over the protests of handloom interests. In 1925, when Bombay millowners made the withdrawal of a proposed wage cut conditional upon repeal of excise duty and received the backing of the Provincial Government, the duty was suspended by an ordinance. The remission amounted to Rs. 2 crores and did not substantially help the industry, particularly in Bombay, which suffered at least as much from internal as external competition. The Bombay mills had frittered away their resources during the war boom by distributing Rs. 50 crores as dividend between 1915 and 1922, an average of 53 per cent on paid-up capital.

Encouraged by their triumph over excise, the Bombay and Ahmadabad millowners pressed home with a demand for protection against Japanese competition. The Tariff Board was divided in its recommendations on the subject in 1927 and initially Government confined the relief to restoring the duty exemption on mill machinery and stores. Within a few weeks, however, Government agreed to subordinate its concern for handlooms and granted blanket protection till 1930 to mill yarn of counts 40 and below against Japanese competition, which was actually concentrated in the count range 30 to 50 only. In 1928 and 1929, the piece-goods market became acutely competitive for Bombay and Ahmadabad and demands were made for protection to cover piece-goods as well. Government, too, was looking for revenue to cover its deficit and did not look kindly at Japanese imports which cut into the market for Lancashire. In 1930, after the receipt of the Hardy report, a combination of specific and *ad valorem* duties was levied on imported piece-goods with a slight preference for British goods. Dey* estimated that the new duties were equivalent to a dividend of 11 to 12 per cent on the then paid-up capital of the entire industry and that about one-half of the total sum paid by tax-payers went as bonus to producers These rates were further enhanced twice in 1931, and raised steeply from 20 to 50 per cent on non-British goods in 1932. An industry which had grown vigorously and profitably for at least sixty years in spite of official apathy or antipathy, thus, came to depend upon protection, at least, partly because Bombay and, to a lesser extent, Ahmadabad mills were not able to withstand competition from other internal centres and which, there-

*_The Indian Tariff Problem_, p. 90

fore, found Japanese supplies a convenient scapegoat for covering up their mismanagement of finance and labour. Evidence of mismanagement came soon with the break-up of the Currimbhoy Ebrahim group in 1933 and the transfer or liquidation of several other mills in Bombay shortly thereafter.

Protection to the sugar industry came about largely as a result of heavy revenue duties, but the industry developed only after the Tariff Board recommended their conversion into protective duties. The import duty on sugar was 5 per cent from 1894 to 1916 when it was raised to 10 per cent, and further to 15 per cent in 1921 and 25 per cent in 1922. Three years later, the duty was made specific and was raised fairly consistently for revenue reasons through 1931, when Dey* estimated it as equivalent to 190 per cent *ad valorem* at current prices. In spite of the heavy duty, imports nearly doubled over the twenties to about 9 lakh tonnes. The revenue from import duty rose from Rs. 53 lakhs in 1900-1901 to Rs. 870 lakhs in 1929-30, in which year Government encouraged the industry to seek protection. The Tariff Board recommended that the revenue duty (which stood at 120 per cent at the end of 1930-31) be transferred to the protective schedule for 15 years, the rate for the first 7 years to be 135 per cent and for the next 8 years 101 per cent. Government, without committing itself to the conversion, raised the rate of duty in 1931 to the level recommended by the Board. The policy underlying sugar protection was not designed primarily to help the sugar industry but to protect the interests of farmers growing sugarcane, the cultivation of which fetched the highest monetary return among all staple crops. In 1929-30, there were only 29 sugar factories producing 91,444 tonnes of white sugar. The import of sugar mill machinery in real terms increased thirty times between 1928 and 1933; sugar production was 5.69 lakh tonnes in 1932-33 and reached self-sufficiency in 1935-36 when there were 135 factories.

Protection to Other Industries: In 1924 the import duty on sulphur was abolished in order to help chemical manufacturers. The Tariff Board reported on paper in 1925 and concluded that sabai paper was not an infant industry; protection could be given only along with such non-tariff concessions as protection of process, patents and State guarantees for debenture issues. Government agreed to grant only protective duties for seven years but the industry was saved. Among other industries that received protection between 1923 and 1939 were printer's ink, matches, salt, heavy chemicals, sericulture, magnesium chloride, plywood and tea chests. Protection to heavy chemicals hardly served any purpose because the period of protection was only 1½ years. Magnesium chloride and plywood received only a small measure of protection.

Among the industries that were denied protection were cement (in

*The Indian Tariff Problem, pp 238-39.

1925, though the conversion of *ad valorem* duty into specific in 1926 enabled the industry to satisfy 95 per cent of demand by 1936), glass and worsted woollens (because their essential raw materials were not available locally), kerosene and coal. Another industry, locomotive manufacturing, was denied protection in 1924 on the ground that the home market was not large enough.

As viewed by the Second Fiscal Commission, the basic defect in the approach of the First Fiscal Commission was that "protection was not visualised as an instrument of general economic development but was viewed as a means of enabling particular industries to withstand foreign competition." The conditions laid down by it were, moreover, interpreted rather rigidly. The result was lop-sided development with a lack of attention to the development of basic and ancillary industries.

Effects of Protection: While protection did impose in some cases rather avoidably high costs on the consumer, mainly because it was not aimed at general industrial development, it succeeded to a considerable extent in safeguarding the existence and expansion of the protected industries and also developed some interest in allied industries. Between 1922 and 1939, the production of steel increased eightfold from 1.32 lakh tonnes to 10.57 lakh tonnes; the production of tinplate, wire, wire-nail, engineering and agricultural implements was also encouraged. Cloth production went up from 1554.5 million metres to 3658 million metres, matches from 16 to 22 million gross, paper and paperboard from 24,385 tonnes to 68,075 tonnes and cane sugar from 24,385 tonnes to 945,942 tonnes.

Employment in protected industries grew 47 per cent between 1923 and 1937 from 580,000 to 881,000, while in unprotected industries the increase was only 24 per cent from 8,70,000 to 10,51,000. None of the protected industries suffered any setback in production during the thirties when other industries were passing through difficult times. The area under cotton and sugarcane expanded considerably.

Going by the record of protected industries, the Second Fiscal Commission observed that "the policy of discriminating protection, within its limited scope, has achieved a fairly large measure of success and that, on balance, the direct and indirect advantages to the community of protection to these major industries offset the burden on the consumers."

External Capital: Industrial enterprises had been, since the mid-19th century, dependent to a considerable extent on the supply of capital from abroad and those responsible for providing the capital had naturally secured a large measure of control. At the same time, the demand for industrialization was closely associated with nationalistic aspirations. As industry developed, there were apprehensions that the power of foreign capitalists was increasing. The question was discussed at length by the First Fiscal Commission which was divided on the issue; it was referred

to an External Capital Committee in 1924, consisting of the Finance Member and members of the Legislature. The Committee concluded that external capital was a valuable factor in assisting economic development and that general measures discriminating against it or penalizing it by way of taxation or control would be definitely injurious both to the development of Indian resources and the interests of Indian investors. It also recommended that where investment carried with it the control of an undertaking, certain conditions (stated below) should be applied provided that discrimination was feasible. But it considered that, where a general concession was given, *e.g.*, by a tariff, it was impracticable to effect any discrimination. On behalf of Government, Sir Atul Chatterjee stated in the Assembly on March 2, 1922, that :

> "no concession should be given to any firms in regard to industries in India unless such firms have a rupee capital, unless such firms have a proportion at any rate of Indian directors, and unless such firms allow facilities for Indian apprentices to be trained in their works. This has been mentioned more than once, and I can only repeat this declaration."

The problems created by the setting up of foreign-controlled enterprises, both before and after the adoption of high revenue duties and discriminating protection, were highlighted in the thirties with the entry of international combines into the "new" industries and the frequent non-co-operation of such enterprises with the Tariff Board, in the enquiry into the woollen industry, for example.

Unbalanced and Inadequate Growth : In 1939, there were only 11,600 factories (each employing 20 persons and above) and the number of persons engaged in them was 17.5 lakhs. About one-half of these workers were in cotton and jute mills; engineering (including railway workshops), metals and chemicals together accounted for less than one-fifth, and Government factories employed about one-tenth. The 1931 Census disclosed that, over the preceding twenty years, the working population had expanded by 4 per cent but persons employed in industry had decreased from 17.5 million to 15.3 million or by nearly 13 per cent. The decline was marked in traditional handicrafts but the advance of modern factory industries failed to compensate for it. What were the reasons for this stagnation or arrested growth ?

What little data there are of income trends in the inter-war period indicate that per capita income hardly increased during the period; probably it declined. The total production and per hectere yields of food crops, especially rice, remained constant or declined in British India excluding Burma. The terms of trade were adverse to agriculture. Gold exports, representing dissavings, totalled Rs. 321 crores during the seven years 1931-37. Between 1928-29 and 1932-33, the value

of exports fell from Rs. 339 crores to Rs. 135 crores and of imports from Rs. 260 crores to Rs. 135 crores. Budgetary policy was orthodox: direct and indirect taxes were raised and expenditure was reduced. The total revenue expenditure of Central, Provincial and Local Governments declined from Rs. 365 crores in 1928-29 to Rs. 325 crores in 1934-35; capital expenditure of Central and Provincial Governments went down from Rs. 44 crores to Rs. 5 crores over the period. Aggregate public sector outlay in 1934-35 was Rs. 345 crores against Rs. 412 crores in 1928-29.* Decline in purchasing power and minimization of Government purchases dimmed the prospects of industrial development which came to be based largely on substitution of imported light consumer goods behind a tariff wall which helped to create and maintain a gap between the prices and costs of finished goods.

The tariff wall had a large window in the shape of Imperial preference during the thirties, and it was partial in the sense that it was extended piecemeal and never covered the import of machinery and stores on the ground that tariffs on them would raise industrial costs. Cotton, sugar, cement and steel expanded under the umbrella of protection, statutory or informal. Their expansion did not lead to any marked growth in engineering and chemicals. The growth of engineering industry was arrested by severe retrenchment in railway** and other public expenditure (the key element for the industry), and decline in coal and jute output. What demand there was for capital and intermediate goods (mainly from protected industries) was satisfied from imports which were substantially cheaper than in the early twenties; this demand was in any case subject to a ceiling set by the possibility of short term import substitution in terms of quantity and/or selected qualities. The cement glut in the thirties brought out the dangers of piercing this ceiling too rapidly.

Setting up of non-traditional industries required—understandably to a greater extent than in the planned fifties and sixties—foreign capital and skills, which were not forthcoming. British private capital was attracted to India when profits were fabulous in the jute industry during post-war years (Table I). The annual export of British capital to India increased from £14.7 millions (9% of total) in 1908-10 to £29 millions in 1921 and further to £ 36 millions in 1922 when it was about one-fourth of total British capital exports. The annual figured ropped to about £ 1 million between 1924 and 1926 and to less than £ 1 million in 1927. There was some revival of British investment in thet hirties but the new investment was almost wholly in consumer goods—and it came from international combines :

*K. Mukerji: *Levels of Economic Activity and Public Expenditure in India*, pp. 89-90.

**The capital at charge of Indian railways rose from Rs. 831 crores in 1928-29 to Rs. 880 crores in 1936-37 while working expenses were reduced during the period from Rs. 75 crores to Rs. 70 crores. (*Indian Railways: One Hundred Years*, 1853-1953).

> "In some important cases, notably the manufacture of cigarettes, matches, rubber tyres, soap, paints, and certain chemicals, these industries are branches of important firms in the United Kingdom which have decided that it is to their advantage to meet the Indian demand from works situated inside the tariff wall, and also to be in a position to claim the status of Indian origin when tendering for the requirements of Government purchasing departments."*

As the depression took its toll of British prosperity and employment, the liberalization of policies that had been evident soon after the First World War became gradually diluted till, in the thirties, one missed any reference to the importance of basic industries and assurance of Government purchases which the Industrial Commission had stressed. Protection to politically influential industries sweetened the pill of imperial preference. No attempt was made to extract a *quid pro quo* from protected industries in the form of rationalization of management and location or to bring about backward linkage of production to intermediates and capital goods. It is fair to add, at the same time, that the few Indian business groups in existence were, on the one hand, debilitated by their misadventures and decline in profitability during the twenties and, on the other, their energy and resources were exhausted in the large expansion of sugar and cement and maintenance of cotton mills on an even keel. Not till the late thirties could the Tatas, for example, recover sufficiently from their post-war setbacks to go into chemicals and heavy engineering. Filling up of the structural gaps which the Industrial Commission had pinpointed required considerable Government initiative and assistance. Instead, Government was concerned exclusively with balancing its own budget.

The Second World War found India somewhat better prepared and equipped than during the First World War but, as compared with the level and variety of demands imposed on the economy, the situation was not very different. Cotton, jute and steel remained the principal items of war procurement, though large orders for ammunition shells gave engineering factories and railway workshops some useful experience of mass production.

The Second World War gave a considerable impetus to the development of industrial potential; its contribution to actual expansion was not equally great. In 1940, Government announced that industries started during the war would be adequately protected if they were organized on sound business lines. After an initial setback caused by stoppage of trade with enemy countries and disruption of shipping, an uptrend was established which lasted till 1945 and then petered out the very next year.

Those industries which were already in existence worked to full cap-

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* *Report on Conditions on Prospects of United Kingdom Trade in India*, 1931 (Department of Overseas Trade, London.)

TABLE I

Dividends as Per Cent of Ordinary Capital

	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Banks	13.4	15.6	16.0	15.1	14.9	15.4	15.4	14.9	14.5	14.5	14.1
Jute Mills	141.5	125.4	109.7	34.8	38.2	39.0	56.8	44.7	36.3	54.2	59.3
Coal Companies	15.7	19.0	17.3	18.2	16.8	16.6	16.5	14.5	10.2	8.2	7.5
Tea Companies	19.8	13.6	1.3	11.4	20.0	35.0	36.7	21.7	22.6	34.7	13.8
Pressing Companies	—	—	13.8	12.9	12.0	11.3	12.0	14.7	14.5	15.5	14.3
Oil Companies	—	—	16.7	9.2	3.1	4.6	2.5	2.5	3.8	5.0	7.5
Insurance Companies	30.0	20.0	25.6	22.5	25.7	15.7	27.1	18.1	15.7	12.8	16.9
Real Property and *Zamindari*	—	—	5.0	32.5	32.5	17.5	3.3	2.3	2.3	2.3	2.3
Paper Mills	53.5	51.0	51.0	18.8	—	—	—	2.5	8.8	11.3	21.3
Cement, Lime, Pottery, etc.	32.9	30.5	55.5	54.9	55.0	16.4	6.9	7.6	6.1	7.8	9.9
Chemical Industries	11.5	14.0	11.3	12.8	8.8	7.5	6.2	5.9	6.0	7.2	7.4
Electric Light, Power and Telephone	8.8	8.5	7.5	6.8	6.4	5.9	5.6	5.7	6.5	6.6	6.6
Engineering and Metal Works	60.1	20.6	24.5	19.8	7.4	4.6	3.0	4.4	3.1	6.0	6.5
Flour Mills	—	47.4	46.8	39.5	35.7	18.9	17.1	21.4	19.6	16.4	17.6
Saw Mills and Timber	26.3	30.8	7.9	5.0	7.0	5.0	2.0	4.8	4.4	9.2	6.6
Sugar Refineries and Distilleries	16.3	15.5	20.3	22.4	14.3	10.6	15.7	9.0	10.3	11.0	11.0
Tramways, Steamer transit and Storage	11.5	13.6	11.7	11.6	9.1	8.2	6.3	7.2	7.8	9.7	9.9
Miscellaneous	24.8	19.4	19.0	3.4	10.7	10.2	10.8	9.4	6.5	6.4	6.4
South India Rubber	—	—	—	—	—	3.5	6.3	25.0	38.1	27.8	6.1
Cotton Mills	26.5	40.8	86.9	53.5	46.9	22.7	14.0	10.0	9.3	10.9	10.4
Light Railways	5.4	5.6	5.9	6.0	5.7	6.1	5.6	6.6	6.3	6.6	6.1

TABLE 1 (*Contd.*)

Dividends as Per Cent of Ordinary Capital

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
Banks	13.0	12.2	11.0	10.9	11.4	11.4	7.6	8.8	8.9	—	—
Jute Mills	4.19	22.1	12.8	10.7	15.6	20.7	14.2	14.1	9.2	5.2	7.1
Coal Companies	8.8	8.5	6.9	4.7	3.6	3.9	5.0	5.3	5.0	6.7	7.4
Tea Companies	9.5	5.5	2.7	2.3	9.2	7.8	8.6	10.0	12.6	11.4	—
Pressing Companies	11.3	8.8	11.0	7.7	8.5	8.1	7.6	6.1	4.9	3.2	2.9
Oil Companies	9.1	8.7	6.7	7.3	4.8	7.5	3.6	2.6	11.8	10.2	7.5
Insurance Companies	13.6	17.1	18.6	17.7	17.7	17.3	17.8	15.1	16.1	14.8	nil
Real Property and *Zamindari*	5.0	5.0	5.0	7.8	9.8	4.3	2.5	5.5	2.4	2.6	1.7
Paper Mills	30.0	24.4	24.4	27.6	23.7	25.0	9.7	11.8	8.3	24.1	11.7
Cement, Lime, Pottery, etc.	25.1	23.4	21.5	21.3	23.7	27.2	14.3	10.9	16.0	15.8	16.0
Chemical Industries	7.0	5.5	4.0	5.8	5.4	5.9	5.9	5.9	5.3	—	—
Electric Light, Power and Telephone	6.0	4.9	4.4	4.6	4.9	5.3	5.2	5.4	5.7	5.9	4.1
Engineering and Metal Works	6.0	3.8	2.9	3.6	3.0	1.3	5.4	6.8	14.0	21.6	34.3
Flour Mills	17.7	6.9	14.1	14.3	1.3	2.4	4.6	9.3	14.8	23.5	2.7
Saw Mills and Timber	7.5	4.0	1.7	3.3	1.7	1.7	6.5	7.3	—	—	—
Sugar Refineries and Distilleries	9.8	9.6	11.1	19.5	17.2	11.6	7.2	9.6	3.6	7.9	7.7
Tramways, Steamer transit and Storage	9.2	7.6	5.2	4.7	5.0	5.7	6.1	5.8	9.1	8.9	6.3
Miscellaneous	5.5	4.9	3.9	3.6	3.6	4.3	5.0	6.6	7.6	7.8	4.4
South India Rubber	5.3	nil	nil	nil	nil	0.4	2.5	5.0	14.7	7.7	4.6
Cotton Mills	11.4	10.0	9.6	8.8	6.7	8.5	9.8	7.4	9.2	—	—
Light Railways	6.2	5.8	4.9	4.6	4.4	4.3	4.3	4.7	4.7	4.8	5.1

Source: Gopal, M. H. *The Theory of Excess Profits Taxation* (Mysore, 1947), pp. 96-7

acitv often in more than one shift. New plants were added in several cases and a few basic industries were established in spite of the extreme difficulty of obtaining capital equipment. A rapid expansion of small-scale industries created new sources of supply; a variety of goods like cutlery, skewers, hand tools, taps, drains and camouflage nets and many other consumer and intermediary goods were manufactured. No precise information is available regarding the output of these small units, some of which disappeared soon after the war. The index of industrial production (1937=100) rose from 102.7 in 1939 to 120 in 1945. The major increases were under steel, chemicals, paper, paints and liquors (Table II), while jute, matches, sugar and wheat flour remained depressed. The production of major industries could not, on the whole, be said to have increased substantially though higher prices and profit margins did bring about unprecedented prosperity to industrial enterprises and their managements. Capital equipment was exposed to considerable wear and tear; maintenance and replacement were neglected. Coal and transport bottle-necks remained a serious threat to output expansion through the war.

Some of the important new industries that were set up during the war were (a) ferro-alloys like ferro-silicon and ferro-manganese, (b) non-ferrous metals and metal fabricating industries like aluminium, copper, copper-sheets, wires and cables, etc., (c) mechanical industries like diesel engines, pumps, bicycles, sewing machines, machine tools and cutting tools, (d) a few items of textile, tea and oil processing machinery, and (e) chemicals like sulphuric acid, caustic soda, chlorine, superphosphates, photographic chemicals and bichromates. Some of these new articles were produced in very small quantities.

Between 1939 and 1945, the volume of factory employment expanded from 18 lakhs to 31 lakhs while in Government factories it expanded from 132,000 to 419,000 (in 1944). The number of ordnance factories trebled and the number of employees increased from 15,000 to 100,000; the number of workshops capable of supplying engineering components rose from 600 to 1500. Output of guns and ammunition rose manifold (artillery equipment produced increased from 97 to 1,376). The monthly production of machine tools expanded from 100 in 1939 to 350-400 in 1945. By September 1941, 54 firms were licensed to manufacture machine tools and lathes, furnances, power blowers, sand blasting plant, etc. Over 280 new items of engineering stores were manufactured for the first time by 1941, ranging from small tools and machine tools to heavy calibre guns, torpedo boats and degaussing cables. Wire mesh, benzol, rubber goods, disinfectors, binoculars, lubricating oils, lead pipes and sheets, chloroform, carbonic acid, oxygen apparatus, stoves and heavy chemicals were produced for the first time. Aluminium alloy drop forgings and various high speed and stainless steels were produced for the air force.

TABLE II

Interim Index of Industrial Production

(1937 — 100)

	General Index	*Cotton Textiles*	*Jute*	*Steel*	*Chemicals*	*Paper*	*Cement*	*Matches*	*Paints*	*Sugar*	*Wheat Flour*	*Distilleries and Breweries*	*Petrol*
1938	105.4	109.0	98.3	108.0	84.4	121.6	124.8	85.1	130.1	88.7	100.6	102.6	123.0
1939	102.7	104.3	92.4	125.0	103.9	135.1	152.9	87.0	147.1	62.5	100.0	100.0	120.5
1940	109.9	103.6	96.1	125.5	133.3	169.7	152.1	90.0	165.6	106.0	97.8	114.5	157.1
1941	117.8	114.8	92.4	131.1	153.2	185.4	185.8	76.4	241.9	108.2	114.0	140.5	174.9
1942	111.2	102.0	99.5	136.7	138.7	180.9	194.5	60.0	233.5	78.4	90.3	144.1	168.3
1943	117.0	117.0	84.4	141.5	138.6	179.2	188.4	68.8	251.3	95.3	70.3	176.0	200.0
1944	117.0	122.9	86.7	139.6	126.3	192.7	182.1	68.1	259.3	97.1	89.2	197.8	197.7
1945	120.0	120.0	84.4	142.9	134.1	196.5	196.5	90.2	232.4	85.5	103.5	220.4	164.8
1946	109.0	101.9	84.6	130.0	111.2	193.4	181.1	90.5	177.8	80.5	64.8	211.7	134.7

Source *Report of the Second Fiscal Commision*, 1949-50, p. 21.

Power alcohol manufacture was taken up. The number of heavy automobile units assembled in Bombay rose from 11,000 in 1939 to 47,000 in 1942; armoured plate vehicles were produced in Jamshedpur, but their output was limited by the necessity of importing chassis.

Till the Japanese invasion of Burma and Assam, there was no serious attempt to develop aircraft, ship-building and automobile manufacture on the ground of certain "serious difficulties" which the invasion nevertheless, helped to overwhelm. An official technical training programme was introduced only in 1941 and then, too provided for the training spread over one year of 7,300 persons at all levels including semi-skilled workers. There was no policy for large-scale training of manpower and its utilization to the maximum advantage.

"Never within recent years," noted Tyson in 1942, "has there been any lack of capital in India or a reluctance to stake it on new and sometimes speculative projects". But the engineering industry was, not surprisingly, found to be organized on a jobbing and servicing basis; mobilizing it for mass production created problems, especially because there was a severe shortage of technicians, skilled labour and machine tools. Control of capital issues was introduced in 1943. There was no control over imports from sources other than enemy countries until May 1940; 117 commodities were under control by May 1941, but comprehensive import control was introduced only in June 1942, and the tendency even then was to cut down all imports in the same proportion. The value of machinery imported declined from Rs. 20 crores in 1939 to Rs. 11 crores in 1943. Before the American entry into the war which rendered the world supply position difficult, shipping imposed its limits.

As Prest pointed out "India was called upon to produce more manufactured goods and grow more food despite the wartime lack of raw materials, fertilizers and machinery which inevitably made these tasks even more difficult than they had been before. The major part of the industrial expansion was in a few industries, engineering, iron and steel, textiles and chemicals, most of which were highly localized. In 1939, 400 out of 800 engineering works, 37 out of 157 foundries and rolling mills, 17 out of 26 chemical works and nearly all coal mining were in the Bay of Bengal area. This meant that the local resources of skill and even unskilled labour were exhausted soon. The Japanese entry and evacuation and flight, together with demand for local military construction, aggravated the scarcity of labour. Many of the lacunae were the result of lack of foresight. "Government thought in the first year of the war that the maximum force for which India could supply equipment was 1 lakh, an Air Force of nine planes with Indian pilots was thought ambitious and the production of ships, automobiles and aircraft was dubbed impossible."

Government Purchases, World War II : Unlike the First World War, when the creation of the Munitions Board took more than two years, a Supply Department was set up as soon as the war broke out in September 1939. It was concerned as much with production as with purchases. The Department acted as the executive agency of, first, the War Supply Board and later, the War Resources Committee, which directed the industrial war, effort in collaboration with the Eastern Group Supply Council. The Director General of Supply was at first responsible for all supplies from ordnance factories and purchases from private industry, but some of his functions were later diverted to other directorates, principally the Directorate General of Munitions which looked after metals. The general method used by these agencies until 1941, was the peace-time one of competitive tendering, but later this disappeared and contracts were placed with industry on the basis of ascertained cost and profit margins. Competitive tendering was continued for small industries. Just before the war, the Chatfield Committee had recommended a capital expenditure of Rs. 7 crores on the expansion of existing ordnance factories at the expense of the British Government. These went into production by 1942. The Roger Mission of 1940-41 surveyed the whole field of industry and recommended capital expenditure in India by the British Government of Rs. 1,235 crores on expansion and rational integration of production.

From 1939-40 to 1944-45, total defence expenditure amounted to Rs. 2,738 crores, of which Rs. 1,389 crores was recoverable from the British Government. The value of contracts placed between 1938-39 and 1942-43 exceeded Rs. 560 crores, including a little more than Rs. 11 crores on small industries. Non-munitions industries also benefited from contracts. Between 1939 and 1945, the Supply Department absorbed, among other things, 3,566 million metres of cloth out of a total output of 23,774 million metres, 43 per cent of paper output, and the entire production of woollen mills. Textiles and engineering stores accounted for 43 per cent each of Supply Department purchases between 1939 and 1941. In the first year of the Eastern Group Council's existence, India supplied 60 per cent of total war demands in the region, 64 per cent after the fall of Hong Kong and Malaya.

Industrial Policy: As in the First World War, Government was eager to give assurances of various kinds of assistance for post-war industrial development. In June 1941, a high level Reconstruction Committee of the Viceroy's Executive Council was appointed to draw up plans for post-war reconstruction. Soon after the publication of the Bombay Plan in 1944, one of its signatories, Ardeshir Dalal, was appointed to head the newly created department of planning and development at the Centre. The department established a number of industrial panels

consisting of officials and non-officials and, on April 23, 1945 issued a statement of industrial policy. The declared objectives of industrial development were stated to be: to increase the national wealth by the maximum exploitation of the country's resources, to make the country better prepared for defence, and to provide a high and stable level of employment. The highlights of the policy statement were as under:

(1) About twenty major industries would be brought under the control of the Central Government.

(2) Basic industries of national importance, namely, aircraft, automobiles, tractors, chemicals and dyes, iron and steel, prime movers, electric machinery, machine tools, electro-chemicals and non-ferrous metals, could be nationalized if adequate private capital was not forthcoming since it was essential in the national interest to promote such industries. All other industries would be left to private enterprise under varying degrees of control. Coal would be handled as a special case.

(3) In order to regulate industrial development, the Government would have to take power to license industrial undertakings. Industrial workers would be enabled to secure fair wages and reasonable living conditions. Controls would be utilized to prevent excess profits and to ensure the quality of industrial products, etc.

(4) Government would have the primary responsibility for assisting industrial progress through the development of transport, power, and facilities for scientific and industrial research and technical education. Government might also assist industry by helping to raise capital by tariff and taxation policy and by the procurement of capital goods from abroad.

In 1945, Government realized the importance of assisting or protecting industries during the transitional stage pending the formulation of a long-term tariff policy. An interim Tariff Board was set up for two years to investigate the claims of various industries seeking protection or Government assistance. To qualify for such cover, an industry had to satisfy the Tariff Board that:

(a) it is established and conducted on sound business lines;

(b) having regard to the natural or economic advantages enjoyed by the industry and its actual or probable costs, it is likely within a reasonable time to develop sufficiently to be able to carry on successfully without protection or State assistance; or

(c) it is an industry to which it is desirable in the national interest to grant protection or assistance and that the probable cost of such protection or assistance to the community is not excessive.

The criteria laid down were more liberal than in pre-war days; the power to make recommendations on matters other than protection

gave the Board considerable flexibility of inquiry and evaluation. Besides protection and other forms of assistance, the Board was empowered to:

(i) maintain a continuous watch over the progress of protected industries and advise Government on the modifications of protection or assistance required;

(ii) report to Government on factors which lead to higher costs of production in India as compared with other countries;

(iii) enquire into the cost of production of commodities and determine their wholesale retail or other prices;

(iv) advise Government on measures required to secure internal production on the most economical cost basis;

(v) recommend measures required for protection against dumping from abroad;

(vi) undertake studies on the effects of *ad valorem* and specific duties and tariff valuations on various articles and the effects of tariff concessions granted to other countries; and

(vii) report to Government as and when necessary on combinations, trusts, monopolies and other restrictions on trade which may tend to affect the industries enjoying protection by restricting production or maintaining or raising prices and to suggest ways and means of preventing such practices.

Most of these additional functions were not actually carried out. The main work of the Board consisted of investigating the claims of protection and inquiring into the cost of production of prices of articles like steel, etc. To anticipate slightly the developments which took place after 1946, the Tariff Board followed the method of equating domestic cost with the landed cost of equivalent imports to determine the quantum of protection and also allowed a margin of upto 20 per cent (generally 10 per cent) for consumer prejudice against the domestic product. In a few cases, subsidies and import restrictions were also recommended. Apart from these, it also made other recommendations covering:

(a) placing of Government orders,

(b) modification of capital structure of companies in applicant industries,

(c) safeguards for companies registered in India competing with foreign companies manufacturing in India,

(d) refund of duty on capital goods or raw materials required by the industry,

(e) increased employment and training of Indian nationals and assistance for technical training and employment of foreign experts,

(f) formation of manufacturers' associations and institution of joint sales organizations, and

(g) prescription of suitable standard specifications.

During the five years 1945-50, the interim Tariff Board conducted 90 inquiries, including 5 price inquiries against 51 carried out between 1923 and 1939, and Government announced its decisions in most cases within two months of the receipt of its recommendations. This was in striking contrast with the period of 3 to 24 months taken by Government to make its decisions between 1926 and 1937 after 5 to 18 months taken by the then Board to submit its report, quite apart from the delay in referring applications to the Board or outright rejections without reference to the Board.* The interim Board recommended protection for the first time to 38 industries and continuance of protection to 22 industries. Among the important industries which received protection during 1945-50 were aluminium, antimony, caustic soda, bleaching powder, soda ash, textile machinery, bicycles, electric motors, plastics, preserved fruits, sewing machines, sheet glass, starch, and calcium chloride.

Industries in Princely States: The leading progressive States planned and carried out a number of enterprises during and immediately after the war. In 1940, Mysore (Karnataka), in collaboration with the industrialist Walchand Hirachand, established Hindustan Aircraft but, soon after, the Government of India bought out Walchand and took it over as an aircraft repair shop. The State also established an industrial and testing laboratory, and took up a large part of the equity of several companies established for the manufacture of matches, radio and electrical equipment, lac and paints, chrome tanning, and chemicals and fertilizers. Departmental enterprises entered into the manufacture of vegetable oils, glass, enamel, electric bulbs, porcelain, and plywood. A survey in 1951 found that the State had invested a little more than Rs. 5 crores in departmental enterprises, Rs. 84 lakhs in joint ventures with private interests and advanced loans exceeding Rs. 30 lakhs to the latter. The Mysore Iron and Steel Works which had started in 1923 with a wood distillation plant and a 61-tonnes per day capacity charcoal blast furnace had changed over to the production of steel and cast iron pipes in 1936; two years later a cement unit was added and, in 1942, a ferro-silicon plant was added.

In Hyderabad, the mining areas under Singareni Collieries (established in 1920) were further developed. After the war, the State promoted and financed a large number of enterprises for the manufacture, among other things, of machine tools and forgings, cotton, sugar, heavy chemicals, sheet glass, glucose, starch, casein, plastics, metal products, etc. By 1949, there were 43 industrial concerns in which the Government held large blocks of shares.

Report of the Second Fiscal Commission, p. 11

The Travancore Government promoted and invested heavily in companies for the manufacture of fertilizers and chemicals, sugar, rubber, cement, rayon, electro-chemicals, titanium, and timber soon after the war. It also set up departmental enterprises for the production of soap, porcelain, bicycles and an assorted variety of other goods.

While many of these enterprises became the nuclei of growth and contributed to the industrialization of the regions, the arrangements for their management, finance and marketing were not always satisfactory. Nearly all of them enjoyed guaranteed markets and various other concessions like free or cheap land, power, etc., but these in turn imposed oligations of a constricting nature. Departmental enterprises were stifled by administrative control, while private managements were not always keen to give their best since their own equity was disproportionately small. There was no over-all policy to regulate promotion, assistance and supervision; each project was taken up or aided on an *ad hoc* basis. Most of these enterprises had to be drastically reorganized in the fifties. These mistakes notwithstanding, there is no doubt that assistance and concessions from Princely States played a key role in the promotion of industrial entrepreneurship in the South, and laid the foundation for the impressive and relatively broad-based progress witnessed later during the fifties and sixties.

Summing Up: Pre-independence industrial policy wavered between, on the one hand, a paternalistic urge which manifested itself, during peace-time, in sporadic and fitful essays in industrial demonstration, education and unviable small direct assistance and concessions, during the two war periods in hectic procurement and liberal promises of post-war generosity and, on the other, acceptance of orthodox non-interventionist economic dogmas. The influence of British manufacturers was strong, till 1914, in the determination of tariff policy and, later, in more sophisticated direction of the course of discriminating protection and Government and railway purchases. The feelings of the Indian entrepreneurial class were assuaged with protection to cotton, sugar and steel, in which the British hold over the Indian market was being severely eroded by imports from non-sterling countries. In so far as protection led to industrialization during the twenties and thirties, a growing new market for industrial machinery was created for the benefit of British manufacturers who continued to enjoy a practical monopoly of supply of major engineering items to the railways. The engineering industry, largely British-controlled then, built itself up for repair and job functions, to which assembling of imported components was added during and after the war.

Curiously enough, both the periods — 1870's to 1890's and the late 1920's to early 1930's — in which there were something like minor and

limited investment booms coincided with world-wide decline in machinery prices. This remarkable coincidence took away what little incentive there might have been to establish machinery manufacture. A representative of Tatas stated before the Tariff Board in 1932 that financial and technical conditions were such that private industrialists were not able or inclined to enter into heavy engineering and chemicals without the promise of substantial support from Government. For its part, Government was eager to cut down expenditure and purchase commitments; guarantees of Government purchases or inducement of domestic purchases of plant and machinery at higher than import prices were unthinkable. Government production of railway, cotton and jute equipment (which had a relatively large market) would have run foul of orthodox policies and British manufacturers; production of equipment for sugar, paper and cement was ruled out, among other reasons, by the small size of the market and the once-for-all nature of the investment in these import substitutive industries. While the policy of discriminating production and high revenue duties was partial and halting, the real failure was not just of what industrial policy there was but lay in the absence of an over-all economic policy designed to arrest the decline of general purchasing power and employment opportunities and thereby to create an environment of growth. Protection could only give a shot in the arm for partial and fragmented import substitution in the short run; it could not expand aggregate demand for industrial products and create prospects of indefinite expansion.

The Indian entrepreneurial class exhausted its energies during the inter-war years in the expansion of cotton, sugar and cement. Its horizons did not stretch any wider due to lack of capital, technical skill and know-how of selling unfamiliar goods. Except for the Princely States and rich zamindars, which constituted a rather narrow and unpredictable class of long-term investors, there were no institutions to provide long-term finance for projects requiring considerable capital and likely to take a long time to earn a return from goods with uncertain sales prospects. The twenties and thirties were decades of lost opportunities mainly because Government refused to take an active and direct part in industrial development and the entrepreneurial class was distracted by the temporary — and in the long run costly — advantages of protection for consumer goods.

The pace of industrial investment, as measured by imports of "machinery and millwork", was extremely slow even after allowing for decline in import prices. Such imports averaged Rs. 5 to 6 crores a year from 1904 to 1918, rose to nearly Rs. 22 crores (when prices were inflated) in the period 1919-20 to 1923-24 and fell to about Rs. 13 crores between 1929-30 and 1936-37 (Table III). The index of all import prices declined by 37 per cent between 1927-28 and 1936-37; even on the out-

side but unrealistic assumption that machinery prices declined in the same proportion, the investment in industry during the inter-war years could hardly be described as substantial.

TABLE III

Annual Imports of Machinery and Millwork 1899-1939

Period/year		*Amount* (Rs. lakhs)
1899-1900 to 1903-04	(av)	2,79
1904-05 to 1908-09	(av)	5,58
1909-10 to 1913-14	(av)	5,61
1914-15 to 1918-19	(av)	5,13
1919-20 to 1923-24	(av)	21,64
1924-25 to 1928-29	(av)	16,19
1929-30 to 1933-34	(av)	13,36
1934-35		12,64
1935-36		13,68
1936-37*		12,76
1937-38		17,14
1938-39		19,04

Source : Vera Anstey: *Economic Development of India* (4th ed.), p. 624.
*Excluding Burma.

The war squeezed out the last ounce of production from existing industrial capacity but gave little scope for expansion of capacity, particularly in areas crucial for future growth. Its main contribution lay in the building up of immense trading and industrial fortunes through price inflation and drastic curtailment of mass consumption, and in familiarizing a key section of the population with new material aspirations and goods. Barring some import of steel and a little equipment on the recommendation of the Roger Mission, no concerted effort was made to import machinery under U.S. Lend-Lease arrangements. The immediate problem for industry after the war was to make up the damage caused by excessive wear and tear and lack of maintenance. World-wide shortage of machinery and shipping, political disturbances and blocking of sterling balances made it difficult to launch any major industrial expansion soon after the war.

On the eve of independence, India was one of the top dozen industrial countries of the world, measured by the size of its industrial output. Most of this output consisted of cotton piece-goods and yarn, jute, steel, paper, cigarettes, cement, coal and sugar. There was practically no production of capital goods in 1946, India produced machine tools worth Rs. 91 lakhs, electric motors 46,000 h.p., power transformers 39,000 kva and 473 diesel engines (Table IV). Non-ferrous metals, electrical engineering, automobiles, tractors, prime movers and heavy chemicals were either non-existent or still in their infancy. The output of chemicals was nominal: sulphuric acid 60,963 tonnes (against 19,305 tonnes in 1919), and a few thousand tonnes of caustic soda, soda ash, chlorine

TABLE IV

Production of Major Industries 1946

Industry	*Unit*		*Production*
Consumer Goods:			
1. Cotton cloth	m.	metres	3,574
2. Woollens	th.	kg.	122
3. Sugar	th.	tonnes	9.05
4. Cigarettes	m.	no.	18,879*
5. Drugs (tinctures and galenicals)	th.	litres	2,273*
6. Paper and paper board	th.	tonnes	107.7
7. Matches	50	gross	412,000
8. Electric lamps	th.	no.	6,31
9. Storage batteries	th.	no.	27
10. Electric fans	th.	no.	1,10
11. *Vanaspati*	th.	tonnes	88.4
Integrated and Production Goods			
1. Cotton yarn	m.	kg.	520
2. Chrome tanned hides	th.	no.	10,87**
3. Vegetable tanned hides	th.	no.	19,53**
4. Cement	th.	tonnes	1567
5. Asbestos cement sheets	th.	tonnes	77.2**
6. Conduit pipes	th.	metres	520**
7. Steel ingots & castings	th.	tonnes	1,314
8. Aluminium	tonnes		3,288
9. Antimony	tonnes		134
10. Copper	tonnes		6,311
11. Sulphuric acid	th.	tonnes	61
12. Superphosphates	th.	tonnes	5.1
13. Caustic soda	th.	tonnes	3
14. Soda ash	th.	tonnes	12.1
15. Chlorine liquid	tonnes		1,524
16. Bleaching powder	tonnes		2,032
17. Bichromates	tonnes		2,114
18. Industrial alcohol	th.	litres	21,911*
19. Power alcohol	th.	litres	13,274*
20. Dry cells	lakh	no.	8,80
21. Belting	tonnes		625*
22. Refractories	th.	tonnes	159
23. H.T. Insulators	th.	no.	74*
24. L.T. Insulators	th.	no.	14,30*
25. Sheet glass	th.	sq. m.	515
26. Abrasives	th.	reams	61
27. Jute mnf.	th.	tonnes	1,106
28. Plywood	lakh	sq. metres	30.87
29. Bare copper conductors	tonnes		5,974**
30. Winding wires	tonnes		335**
31. Rubber insulated cables	th.	metres	18,395**
Capital Goods			
1. Machine tools	th.	Rs	91,25
2. Electric motors	th.	h.p.	46
3. Power transformers	th.	kva	39
4. Diesel engines	no.		473
Fuel and Power			
1. Coal	m.	tonnes	29.5
2. Electricity	m.	kwh.	4,935

Sources. 1. *Report of the Second Fiscal Commission*, Appendix V.
2. Vakil C.N. *Economic Consequences of Divided India.*

*1947 **1948

and bichromates. The partition fortunately left India with nearly the entire industry of undivided India (Table V). As compared with the country's resources and population, however, only the surface had been scratched. Per capita income was Rs. 200 and per capita consumption of electrical energy 9.2 kwh. Total industrial employment was 15 millions, of which 2.6 millions or less than 2 per cent of the total working population was employed in large scale factories. National income originating in factory establishments in 1948-49 (when national income was first officially estimated) was Rs. 550 crores, about 6 per cent of total national income, while small and cottage enterprises accounted for Rs. 870 crores, another 10 per cent of the national income.

TABLE V

Industrial Establishments and Employment in India, 1945

Industry	*India*		*Pakistan*		*Total*	
	No. of factories	*No. of workers ('000)*	*No. of factories*	*No. of workers ('000)*	*No. of factories*	*No. of workers ('000)*
1. Textile	1,656	1,194	46	32	1,702	1,226
2. Engineering	1,734	429	278	53	2,012	482
3. Minerals and metals	347	130	51	4	398	134
4. Food, drink and tobacco	3,749	360	467	30	4,216	390
5. Chemicals	1,009	115	56	5	1,065	120
6. Paper and printing	616	72	57	5	673	77
7. Wood, stone and glass	1,035	142	65	11	1,100	153
8. Hides and skins	294	39	8	2	302	41
9. Ginning and pressing	2,123	141	353	39	2,476	180
10. Miscellaneous	600	312	33	26	633	338
Total:	13,163	2,936	1,406	206	14,569	3,142

Source: Vakil C. N.: *Economic Consequences of Divided India*, pp. 286-87.

II. Industrial Policy since Independence

Industrial policy since independence has aimed at rapid growth of industry as a spearhead of all-round economic development through a vigorous and strategic expansion of public sector enterprises, unprecedented inducements for private investment and simultaneous efforts to bring about institutional changes and social reforms which would ultimately facilitate sustained industrial growth. The broad outlines of industrial policy and the demarcation between public and private sectors are stated at length in the Industrial Policy Statements of 1948 and 1956 but these provide no more than flexible guidelines for policy thinking and implementation. A comprehensive view of industrial policy has to include, besides the 1948 and 1956 statements, the programmes and priorities laid down in the Five-Year Plans, the considerable amount and variety of legislation enacted to create and strengthen the

desired institutional structure for planned development, and the administrative interpretation and implementation of all these. The last is not the least important. The texts of policy statements and laws are the results of balancing of various conflicting ideas and interests; they do not provide a comprehensive logical framework readliy applicable to individual situations and problems. The policy statements explicitly accept the need for exceptions and flexibility; the laws vest considerable discretion in executive agencies.

The major role of industry, especially heavy industry, in economic development, and active State participation in and direction of industrial growth were two common elements in all programmes of development, beginning with Visvesvaraya's pioneering essay in planning in the mid-thirties, through the Royist People's Plan, the Bombay Industrialists' Plan, the Gandhian Plan, the official post-war reconstruction schemes, the reports of the Congress National Planning Committee, and, finally the report of the Advisory Planning Board under the chairmanship of K.C. Neogy in 1946. The Government's immediate concern after independence, however, was to deal with the steep fall in production levels since the termination of the war owing to shortage of raw materials and transport, backlog of equipment replacement and labour unrest. An Industries Conference attended by representatives of Central and Provincial Governments, industrialists and labour was held in December 1947, and considered ways and means of (i) utilizing the existing capacity more fully and (ii) harnessing industry to the growing requirements of the people. On the recommendation of this Conference, Government drew up an immediate plan for the provision of essential capital goods and raw materials to thirty industries, including steel, cotton textiles, cement, superphosphates, paper, drugs, machine tools, motor car batteries, and electrical motors. A coal transport committee was established in Calcutta to expedite the movement of coal from coal-fields to industrial centres. A tripartite agreement, the fore-runner of several to come, was reached on a three-year industrial truce between labour and employers. The industrial policy statement which followed in April 1948, was based largely on the recommendations of this conference. A resolution on labour-capital relations, later accepted by Government, stated:

> "The system of remuneration to capital as well as labour must be so devised that, while in the interests of the consumers and the primary producers, excessive profits should be prevented by suitable methods of taxation and otherwise, both will share the product of their common effort, after making provision for payment of fair wages to labour, a fair return on capital employed in the industry and reasonable reserves for the maintenance and expansion of the undertaking."

The number of man days lost due to industrial disputes, which had

risen from 4 million in 1945 to 16.5 million in 1947, fell to 7.8 million the next year and further to 3.8 million in 1951. This achievement was greatly facilitated by the spate of arbitration awards raising wages and cost of living allowances and providing for profit sharing bonuses. Thanks to the better industrial climate and some improvement in the transport and raw material position, production in various key industries tended to revive.

1948 Statement: The Government Resolution on industrial policy, of April 6, 1948 (Appendix I) emphasized the need for the expansion of production as the pre-requisite for more equitable distribution. Within its limited resources and trained personnel, Government would expand its existing units and start new ones in other fields rather than acquire and run existing private units. In order to eliminate the uncertainties and fears engendered in the private sector by statements of various ministers, etc., Government declared that only atomic energy and railway transport would be State monopolies; in six industries, coal, iron and steel, aircraft manufacture, ship-building, communication equipment and mineral oils, all new undertakings would be under State auspices "except where, in the national interest, the State itself finds it necessary to secure the co-operation of private enterprise subject to such control and regulation as the Central Government may prescribe." Existing undertakings in these fields would be allowed "all facilities for efficient working and reasonable expansion" for ten years, after which the whole matter would be reviewed. Fair and equitable compensation would be paid in the event of nationalization. State enterprises will as a rule be managed through statutory corporations. "The rest of the industrial field will normally be open to private enterprise, *individual as well as co-operative*", but 18 specified industries of national importance or which require considerable investment or high degree of technical skill will be subject to Central regulation and control.

The resolution made no economic or technical distinction between cottage and small industries but promised all assistance, including protection against competition from large units, for their survival and expansion. Great stress was laid on co-operativization of these industries. "The present international situation is likely to lessen to a marked degree our chances of getting capital goods for large-scale industry, and the leeway must be made up by having recourse to small size industrial co-operatives throughout the country."

Government indicated its readiness to extend assistance to private or co-operative enterprise, in particular, by removing transport difficulties, facilitating the import of essential raw materials, imposing tariffs to prevent unfair foreign competition, and by reviewing the system of taxation to encourage saving and productive investment.

Looking back, the 1948 Statement appears to lack both vision and perspective. It was too concerned with soothing the fears of industries reeling under threats of nationalization and offering industrial labour a recognition of its rights as a partner in industry. The ten-year reprieve granted to existing private undertakings in basic industries led to more, not less, uncertainty and little was done by the State itself for some years to enter these industries. New State enterprises were confined to fertilizers, telephone cables, penicillin, machine tools, telephone instruments and steam locomotives. Private investment in steel was curbed till 1952 by prospective state entry and unremunerative prices and in cotton mills by restrictions on modernization of equipment in the name of protecting handlooms. A number of new private industries did, however, come up during the period: automatic looms, gramophone needles, aluminium powder, electric meters, miniature electric lamps, machine tools, piston rings, ball bearings, electric motors upto 70 h.p., electric transformers, scientific glassware, and machine-made glass ampoules.

State industrial enterprises, it was soon found (as the Damodar Valley Corporation got bogged down in organizational difficulties), could not work well as statutory corporations; they came to be registered as joint-stock companies. Large joint ventures with private enterprise in basic industries, which were expected to become fashionable after the flotation of Air India International in 1949 with Tata collaboration, went out of favour soon; Air India (along with domestic aviation), Hindustan Ship-building and Eastern Shipping were taken over wholly by Government after a short partnership with private interests which (Tata in Air India excepted) found the financial burdens onerous.*

The statement betrayed absence of clear understanding of the distinctive problems and prospects of small and cottage industries, and perception of the specific fields in which co-operativization could make headway. No plans were announced for long-term finance for setting up new industries or for modernization. The setting up of the Industrial Finance Corporation did mark a step forward in this direction but, for a number of years, it financed mainly the traditional industries. In 1948, neither Government nor businessmen nor economic experts had any clear idea of the wide variety of basic engineering and chemical industries, other than basic iron and steel, required for industrial development.

Second Fiscal Commission 1949-50: Government appointed the Second Fiscal Commission in April 1949 to examine afresh the question of protection in the general setting of industrial development. The Commission looked upon the process of industrialization as "basically a problem

*During the Third Plan, such joint ventures of the Centre with private interests were revived but almost wholly with foreign collaborators in oil-refining and explosives.

of the reorganization of the occupational pattern." Whether and how far it should take the form of cottage, small-scale and large-scale industries depended, in its view, upon:

a. the nature of the industry,
b. the technological character of the industry,
c. the relative proportions of capital and labour needed for the industry,
d. the extent to which decentralization in production in small units is economical on the basis of private and social costs, and
e. the rate at which it is desired to effect a change in the occupational pattern.

State initiative and assistance, it recommended, should play an important part in the promotion of cottage and small-scale industries. Where no conflict existed between these sectors, programmes of development should be framed in consultation with all the interests concerned. Where, however, there is competition between large-scale industries, on the one hand, and small and cottage industries, on the other, and it is established that the latter deserve support against competition from the former, Government should take necessary steps to safeguard the position of the latter in consultation with the interests affected till such time as they are able to stand on their legs.

The Commission recommended the following order of priorities for the *public sector:*

(i) essential defence industries;
(ii) industries connected with the development of natural resources *e.g.*, water power, key minerals like coal and petroleum;
(iii) public utility industries, *e.g.*, railways, power generation, etc.; and
(iv) heavy key and basic industries which, in the absence of private enterprise, the State may have to initiate and develop;

and for the *private sector:*

(i) increase of production in existing undertakings upto the maximum of their installed capacity;
(ii) expansion of existing industries upto the limits of effective demand in their market with special reference wherever possible to export markets;
(iii) establishment and development of industries which are complementary to existing industries in the public or private sector, *e.g.*, industries which manufacture the components of other industries or which carry the processes of production a stage nearer final consumption;
(iv) establishment of such industries as are related to existing

industries and may increase the external economies resulting from the establishment of a group of connected industries; and

(v) establishment of industries catering for a large market, internal or external, rather than those satisfying a limited or specific demand.

For the location of relatively 'foot-loose' industries, the Commission recommended reliance in the first instance upon negative measures to prevent further concentration in areas already congested, together with simultaneous positive steps to improve the attractiveness of areas which were socially more desirable for migration of new or existing industries. The Commission ended its general remarks on what it considered a realistic note:

"Having regard to the available capital resources and technical ability, we do not think that it is possible to achieve a more intensive pattern of large-scale industrialisation than that visualized (by the Commission) .. except through a measure of austerity or regimentation which, in the circumstances of this country, we consider it extremely difficult to enforce."

On tariff policy proper, the Commission was of the view that protection should be related to overall planning of economic development to avoid unequal distribution of the burdens of tariffs and un-co-ordinated growth of industries. It divided industries into three categories: (a) defence and other strategic industries, (b) basic and key industries, and (c) other industries. It recommended that industries in category (a) should be protected regardless of cost on national considerations. Regarding basic and key industries in the plan, the Tariff Commission to be set up with enlarged powers should decide the form and quantum of protection and lay down the terms and conditions for grant of protection or assistance and review from time to time the extent to which these conditions have been or were being complied with by the protected industries. For the third category, it laid down the following criteria:

"Having regard to the economic advantages enjoyed by the industry or available to it and its actual or probable cost of production, it is likely within a reasonable time to develop sufficiently to be able to carry on successfully without protection or assistance and/or it is an industry to which it is desirable in the national interest to grant protection or assistance and, having regard to the direct and indirect advantages, the probable cost of such protection or assistance to the community is not excessive."

The Commission also gave liberal clarifications of certain specific issues:

1. Local availability of raw materials need not be a necessary condition for protection so long as there are other countervailing advantages.

2. The potential export market can be taken into account.
3. Ordinarily an industry should be able to satisfy the entire domestic demand but this need not be an overriding consideration in the short run.
4. Compensatory protection to industries using the products of protected industries should be considered on merits.
5. Protection to new and embryonic industries prior to their actual establishment should be considered in those industries which require heavy capital outlay or highly specialized personnel.
6. Excise duties on protected articles should be generally avoided.
7. Price fixation of raw materials for protected industries, wherever necessary, should be done by the Centre and not by States.

A portion of the revenues collected from protective duties should be set aside in a Development Fund, out of which subsidies in lieu of protective tariffs could be given to selected industries. Quantitative restrictions should be used sparingly and temporarily. Subsidies should be preferred to tariffs where domestic supply meets only a small portion of the domestic demand and where the commodities are essential raw materials. The obligations of protected industries should mainly be with regard to prices, production, quality of production, adoption of technological improvements, research, training of apprentices and higher grades of labour and avoidance of anti-social activities.

As for stores purchases, the Commission suggested a reasonable margin of preference for domestic goods so long as they conformed to standard specifications, and a higher margin of preference to the products of cottage and small industries.

Industries Act 1951: Licensing and regulation of important industries were the main instruments of centralized social and economic control envisaged in the 1948 Statement. Private opposition led to delay and changing of the title of the bill from 'Industries Control and Regulation' to 'Industries Development and Regulation'. The law finally enacted in 1951 applied initially to 37 industries listed in the first schedule. Its important provisions are:

1. All existing industrial undertakings in the scheduled industries have to be registered with Government within a prescribed period.
2. No new industrial unit can be established or substantial extensions to existing plants made for a fixed investment exceeding Rs. 5 lakhs without a license from the Central Government.
3. Government can order an investigation in respect of any scheduled industry or undertaking if, in its opinion, there has been or is likely to be an unjustifiable fall in the volume of production in the industry or undertaking or if there is a marked deterioration in

quality or an increase in price for which there is no justification; a similar investigation can also be ordered in respect of any industrial undertaking being managed in a manner likely to cause serious injury or damage to consumers.

4. In the event of an industry or undertaking not carrying out the directions issued after such an investigation, Government can take over its management.

These powers have to be exercised in consultation with a Central Advisory Council. Moreover, Development Councils were to be established for maintaining the necessary liaison between the public and private sectors, for ensuring that private industry conformed more and more to the planned pattern of development, and for building up a cadre of specialists in each industry. The more important of their functions are to:

(a) recommend targets for production, co-ordinate production programmes and review progress;
(b) suggest norms of efficiency and reduce costs;
(c) recommend measures for full utilization of capacity and improved working of less efficient units;
(d) assist in distribution of controlled materials and obtaining local supplies;
(e) promote scientific and industrial research and collect statistics;
(f) investigate possibilities of decentralization of processes and development of ancillary, small and cottage industries;
(g) promote training and retraining of personnel; and
(h) undertake enquiries for advising Government.

The Act was amended in 1953 to include more industries. By that year, 10 Development Councils had been set up for various industries.

The glow of exhortations to private industry to place itself under social discipline or face the consequences became progressively dimmer as the agricultural and price situation continued to grow worse from 1948 to 1951 and industrial production failed to increase sufficiently. As the First Plan was being drawn up in 1951, the overwhelming degree of attention required for agriculture, power, transport and utilization of existing industrial capacity led to a gradual change in emphasis from control of private enterprise to its harmonious but regulated growth as an integral part of overall development. The most tangible evidence of this change of attitude was provided by the agreements signed in 1951-52, after prolonged negotiations, with the three foreign oil companies which controlled the distribution of oil products, Standard Vacuum, Burmah-Shell and Caltex, for the setting up of petroleum refineries. Government promised to exempt them from certain provisions of the Industries Act, promised not to nationalize the refineries for 25 years, guaranteed availability of foreign exchange for annual remittance of profits in

foreign exchange, permitted them to import crude from areas of their choice, exempted imports of crude oil from customs duty, authorized the companies to sell products at prices equivalent to imported prices and decided to assess their machinery imports at a specially low rate of 5½ per cent *ad valorem*. Many features of these agreements were to cause difficulties and call for frequent readjustments as the international oil market became steadily more competitive but their conclusion in 1951-52 implied that industrial policy was flexible enough to accommodate technically and economically useful exceptions.

First Five Year Plan: The philosophy of industrial policy in a mixed economy was elaborated in the First Plan:

"It is clear that in the transformation of the economy that is called for (under democratic planning) the State will have to play the crucial role .... a rapid expansion of the economic and social responsibilities of the State will alone be capable of satisfying the legitimate expectations of the people. This need not involve complete nationalisation of the means of production or elimination of private agencies in agriculture or business and industry. It does mean, however, a progressive widening of the public sector and a re-orientation of the private sector to the needs of a planned economy."

"The distinction between the public and the private sector is one of relative emphasis; private enterprise should have a public purpose and there is no such thing under present conditions as completely unregulated and free private enterprise. Private enterprise functions within the conditions created largely by the State .. The points of interaction between private and public enterprise are multiplying rapidly... the private and public sectors cannot be looked upon as anything like two separate entities: they are and must function as parts of a single organism."

For the duration of the First Five Year Plan, Government admitted that it had no alternative but to give the topmost priority to agriculture, including irrigation and power, largely because of the projects in hand, but also because, without a substantial increase in the production of food and raw materials needed for industry, it would be impossible to sustain a higher tempo of industrial investment. The high priority given to agricultural investment in the State programme limited the investment which the State itself could undertake in industries. Progress in this field was, therefore, to depend to a great extent on effort in the private sector, though in key and basic industries which came in the State sphere, long-term demands had to be anticipated and "in fact, supply must come first for demand itself to develop at the required rate."

In view of the high priority for agriculture and the limitation of resources even for essential defence industries, the following general

priorities were laid down in the First Plan:

(i) fuller utilization of capacity in producer goods industries like jute and plywood, and consumer goods industries like cotton textiles, sugar, soap, *vanaspati*, paints and varnishes;

(*ii*) expansion of capacity in capital and producer goods industries like iron and steel, aluminium, cement, fertilizers, heavy chemicals, machine tools, etc.;

(iii) completion of industrial units on which a part of the capital expenditure has already been incurred;

(iv) establishment of new plants which would lend strength to the industrial structure by rectifying, as far as resources permit, the existing lacunae and drawbacks, *e.g.*, manufacture of sulphur from gypsum, chemical pulp for rayon, etc.

Some of the policy questions that were later to assume greater importance were touched upon. Regarding the capital *vs.* consumer goods controversy, it was stated that a larger supply of consumer goods had to come mainly from fuller utilization of existing capacity which could be modernized and made more efficient. As for economies of scale in industrial projects (a rather premature issue at the time), the Plan recognized that some conflicts of considerations were bound to arise but licensing under the Industries Act "should ensure an impartial consideration of all the issues involved in a substantial expansion of existing units or establishment of new ones."

Public sector industrial investment during the First Plan was targeted at Rs. 101 crores, the bulk of it in projects directly under the Centre. The main components of the programme were an iron and steel project, completion and expansion of Sindri fertilizers, integral railway coach factory, expansion of Chittaranjan Locomotive Works, machine tools and ship-building, besides relatively lighter projects like penicillin, D.D.T., and newsprint. Actual investment was Rs. 57 crores. The targets of production and actual achievement are given in Table VI

It was recognized that in the formulation and assessment of the programmes in the private sector, "it is necessary to keep in mind the fact that, in an economy which is not completely centralized, Government can influence but not determine the actual course of investment. Nevertheless, the programmes of development, as now presented are in the nature of best judgements as to what is feasible and desirable." Against the targeted aggregate gross investment of Rs. 463 crores on new projects, replacement and modernization in the private sector, actual investment came to Rs. 340 crores (Table VII). In cotton textiles and power, investment exceeded the targets. Much of the investment was in existing units, to which extent there was no question of a more balanced regional allocation of industry.

TABLE VI

First Plan: Public Sector Production

			Target	*Actual* 1955—56
1.	Pig iron capacity	lakh tonnes	3.55	nil
2.	Finished steel capacity	lakh tonnes	1.0	0.35
3.	Locomotives	no.	92	125
4.	Integral coaches	no.	50	20
5.	Ships	th. GRT	20	13
6.	D.D.T.	tonnes	711	289
7.	Penicillin	m. mega units	4.8	6.6
8.	Ammonium sulphate	lakh tonnes	3.20	3.31
9.	Superphosphate	th. tonnes	16.76	nil
10.	Newsprint	th. tonnes	30.5	4.3
11.	Cables	km.	756	845
12.	Telephones	th. no.	50 (revised)	50
13.	Exchange lines	th. no.	35 (revised)	35
14.	Cement	lakh tonnes	2	1.80
15.	Lathes	no.	1,600 (revised 200)	77

TABLE VII

First Plan: Private Sector Investment (Rs. Crores)

		Target (net)	*Actual (gross)*
1.	Cotton textiles	9	80
2.	Petroleum refining	64	45
3.	Iron and steel	43	49
4.	Engineering	12	25
5.	Chemicals and plastics	14	15
6.	Cement and refractories	15	18
7.	Paper	5	11
8.	Sugar	neg.	15
9.	Power	16	32
10.	Jute	—	15
11.	Rayon and staple fibre	15	8
12.	Others	40	27
		233*	340

Note: Actuals include expenditure on modernization and rehabilitation. Target figures are for net investment only.

*Excludes Rs. 230 crores for replacement and modernization.

Village and Small Industries: The village industry programme in the First Plan was imbued with a spirit of nationalistic revivalism and village self-sufficiency. It was described as having a central place in the rural development programme and was based on the feeling that products of large-scale industry had increasingly limited the market for the products of several classes of rural artisans. In other words, these industries were considered as being the victims of competition from large industry. A Rs. 7 crore programme was drawn up for the development of such industries as oilseed crushing, soap-making, paddy husking, palm *gur*, *gur* and *khandsari*, leather, woollen blankets, hand-made paper, bee-keeping and cottage matches, besides the provision

of facilities for organization, finance, raw materials research, technical guidance, supply of equipment, and marketing assistance. Wherever a large-scale industry competed with a cottage industry (which was not clearly distinguished from a village industry as such), a common production programme was recommended to enable the latter to organize itself. While some criteria for such protection (*e.g.*, comparison of efficiency, scope for development through small-scale methods, employment potentials, social considerations, etc.) were laid down, and controls for this purpose over large industry were envisaged, no safeguards, time limits or inquiry procedures were laid down as pre-requisites on the analogy of protection against external competition. No priorities *inter se* were recommended for various industries. One or more of the following elements could enter into the framing of common production programmes:

(a) reservation of spheres of production;
(b) non-expansion of the capacity of a large-scale industry;
(c) imposition of a cess on large-scale industry;
(d) arrangement for the supply of raw materials, and
(e) co-ordination of research, training, etc.

All India and State Boards were set up for handlooms, *khadi* and village industries, sericulture and coir during the First Plan period. The production of certain varieties of cloth (mainly *dhotis* and *saris*) was reserved for handlooms. a cess was levied on all mill cloth to finance assistance to handlooms and *khadi*, mill printing of cloth was limited to the best year's production in the period 1949-54, and the expansion of large units' capacity for garment-making was restricted. All applications for substantial expansion of existing units or for the establishment of new large units in leather footwear and tanning industries were examined from the point of view of their effect on cottage and small units; an excise duty was also levied on large-scale leather footwear production. The excise rebate for cottage match units was enhanced. A differential excise was imposed on the washing soap industry and a subsidy given for *neem* and non-edible oils used in making soap. In certain other industries, including some types of agricultural implements, furniture-making, sports goods, slates and pencils, *bidi*, writing inks. chalks, crayons and candles, further expansion of co-operativization was, however, extremely poor except in the case of handlooms.

The main beneficiaries of this policy were handlooms (and even more powerlooms) and *khadi*. The production of handloom cloth was estimated to have increased from 678 million metres in 1950-51 to 1,325 million metres in 1955-56 (the latter was probably an over-estimate), while the value of *khadi* went up from Rs. 1.3 crores in 1950-51 to over Rs. 5 crores in 1955-56, when its production was 31 million metres.

As for small industries, *i.e.*, small-scale units using power and/or

functioning as ancillaries to large units, it was recognized that considerable development had taken place in this field without much direction or assistance from Government but this growth lacked some of the elements that make for efficiency and stability. Apart from providing Rs. 15 crores for their development (including handicrafts and handlooms), and seeking to encourage the development of ancillaries, reliance was placed upon State purchases. It was agreed that, where basic considerations like quality, delivery date, etc., were comparable, the products of cottage and small industries would receive preferential treatment. In those items in which cottage industry had advantages over large-scale industry or had established itself as a supplier on competitive terms, orders would be placed with cottage and small units to the fullest extent before placing any orders with large units. For other products, a price preference and suitable relaxation of specifications would be allowed on merits.

The impact of these measures on actual purchases was, however, rather small The total value of purchases made from cottage and small industries by the Directorate General of Supplies and Disposals rose from Rs. 66 lakhs in 1952-53 to Rs. 105 lakhs in 1954-55. A number of emporia and sales depots for handloom, handicrafts and village industries were established during the Plan period. Total outly on village and small industries during the four years 1951-55 amounted to Rs. 15 crores.

First Plan—Summing Up: Industry was more of an appendage to rather than an important central part of the First Plan. Apart from this overriding consideration and a general recognition of the strategic role of industrialization, Government was only groping its way towards an understanding of industrial problems and the industrial needs of the community, as distinct from the acceptance of the idea of social control over the management, expansion and profits of private industry. Many of the implications of a mixed economy were as acceptable to private industry as to Government but there was no consciousness of the instruments required to integrate plan priorities with the working of the prices mechanism which continued to dominate the allocation of resources. This consciousness, though not the instruments themselves, was to come many years later. Meanwhile, Government relied on such broad measures as industrial licensing, uniform tax incentives and concessions for power, land, etc. Licensing under the Industries Act, it was soon found, belied the great expectations that were set by it, except in so far as, together with import restrictions, it created safe and sheltered markets.

The stepping up of machinery imports and private investment during the latter half of the Plan was not wholly due to un-blocking of sterling balances held in London and liberalization of import policy. It represented in large measure the response of Indian capital and enterprise

to larger Government expenditure in the aggregate, larger Government and railway purchases, together with faith in the continuity and growth of all these and of private investment and consumption. This faith proved to be amply justified.

TABLE VIII

First Plan: Major Industrial Targets and Achievements

Item	Production 1950-51	Additonal Production by Plan-end	
		Target	Achievement
1. Finished steel (lakh tonnes)	9.95	6.8	3.05
2. Pig iron (lakh tonnes)	15.95	12.8	2.23
3. Cement (lakh tonnes)	27.3	21.4	19.3
4. Aluminium (th. tonnes)	3.75	8.4	3.65
5. Ammonium sulphate (th. tonnes)	47.0	411.1	352.3
6. Superphosphate (th. tonnes)	55.9	127.1	16.25
7. Locomotives (no.)	3	170	176
8. Cotton yarn (m. kg.)	435	209	206
9. Mill cloth (m. metres)	3,400	898	1,165
10. Handloom cloth (m. metres)	741	814	584
11. Jute mnfs. (th. tonnes)	837	382	234
12. Bicycles (th. no.)	97	433	416
13. Sewing machines (th. no.)	33	59	78
14. Power alcohol (m. litres)	22.7	59	22.7
15. Sugar (th. tonnes).	1,118	406	772

1956 Statement: In December 1954, Parliament accepted a socialistic pattern of society as the objective of social and economic policy. In conformity with this objective, and the Directive Principles of State Policy embodied in the Constitution adopted in 1950, and the higher aspirations which were justified by the growth achieved during the First Plan, it was considered desirable to issue a new Industrial Policy Statement in April 1956 (Appendix III). The need to soothe private sector fears of nationalization was not altogether absent for (apart from the Reserve Bank which was nationalized in 1948), the Imperial Bank was taken over by the Reserve Bank in 1955 (seven years after the announcement of its proposed nationalization), and air transport and life insurance were nationalized in 1953 and early 1956, respectively.

The new policy was aimed at accelerating the rate of economic growth and speeding up industrialization, in particular, through the development of heavy industries and machine making industries, expansion of the public sector in industry and trade, and building up of a large and growing co-operative sector. The lists of industries in the 1948 resolution were elaborated and re-categorized in three schedules:

(A) Industries the future development of which will be the exclusive responsibility of the State. These included, apart from arma-

ments, atomic energy and transport, also iron and steel, heavy plant and machinery, coal and other mining, petroleum and power. All new units in these industries, except approved cases and expansion of existing private units, will be under State auspices or where collaboration with private interests is considered necessary, the State will ensure that it can guide and control the operations.

(B) Industries in which the State will increasingly establish new undertakings but in which private enterprise will also have the opportunity to operate on its own or with State participation, *e.g.*, aluminium, machine tools, ferro-alloys, basic and intermediate chemicals, essential drugs, fertilizers, synthetic rubber, road and sea transport.

(C) All remaining industries will ordinarily be developed through private, including co-operative, initiative but State enterprise will not be altogether excluded from this list.

Unlike the 1948 Statement, which was concerned primarily with the imposition of social discipline over the private sector, this resolution set out in somewhat great detail the positive role of the State in relation to the private sector. Besides ensuring the development of transport, power and other services, and providing appropriate fiscal and other concessions, the State also undertook to provide through institutions, as well as directly, financial aid to industries, especially to enterprises organized on co-operative lines for industrial and agricultural purposes. The idea of a ten-year reprieve before possible nationalization was dropped altogether. After reiterating the need for social and economic controls, the resolution explicitly promised freedom to expand and non-discrimination between public and private units in the same industry:

"The Government of India recognise that, it would, in general, be desirable to allow such undertakings to develop with as much freedom as possible, consistent with the targets and objectives of the national plan. When there exist in the same industry both privately and publicly owned units, it would continue to be the policy of the State to give fair and non-discriminatory treatment to both of them."

The Resolution further reiterated the policy of supporting cottage and small-scale industries on the grounds stated in the First Plan but, after narrating various measures for their protection and assistance, it emphasized the need to make these industries self-supporting and to bring about a technological transformation in them:

"....the aim of the State policy will be to ensure that the decentralised sector acquires sufficient vitality to be self-supporting and its development is integrated with that of large-scale industry. The State will, therefore, concentrate on measures designed to improve the competitive strength of the small-scale producer. For this it is essen-

tial that the technique of production should be constantly improve and modernised, the pace of transformation being regulated so as to avoid, as far as possible, technological unemployment."

Industrial estates were conceived as one of the instruments for the development of cottage and small industries, preferably on a co-operative basis.

To anticipate some major developments which took place later during the Second and Third Plan periods, it may be stressed here that, notwithstanding the ups and downs of development after 1956 and varying interpretations of the Resolution in the framing and implementation of detailed policies, the broad framework and spirit of the Resolution have been implemented faithfully. In Schedule A, existing large coal, steel and power units have been permitted and assisted to expand; the question of their nationalization which was never seriously under consideration ceased to be a practical proposition after World Bank loans were granted to private units in these industries, *inter alia*, on an undertaking from Government that they would not be nationalized. Government has, at the same time, considerably stepped up its share in the output of these three industries. In copper and manganese, existing private units, many of them foreign controlled, have continued undisturbed. In all other major industries except ship-building (from which the private interest concerned was eager to retire for financial reasons), where there were no private units to deal with, all new units have been under State auspices. A joint Government-Stanvac oil exploration project in Bengal — which proved to be a failure — was the only exception and since then there has been no foreign equity participation in oil exploration. All new oil refineries are either fully Government-owned or are under Government majority control; in both cases internal distribution of products is in the public sector.

As for Schedule B, in regard to which there has been some misunderstanding about alleged State withdrawal from certain industries, the Resolution clearly states that private enterprise will also have the opportunity to operate on its own. The private sector, in collaboration with foreign investors in several cases, has gone into aluminium, low grade machine tools, ferro-alloys, special steels, synthetic rubber, coal carbonization, chemical pulp, and essential drugs. A modicum of private interest in fertilizers, which aroused ideaological controversy for some time, almost petered out when the uncertainty of profits and foreign collaboration cast its gloom. In the field of basic and intermediate chemicals and essential drugs, Government received a project report in or about 1958 from a Russian team, which also offered financial and technical asssistance for the setting up of a comprehensive complex of plants. Western private influences had something to do with the emasculation of and considerable delay in this series of projects, but the

issues were not so simple as made out in certain quarters. The offer of Russian assistance did not cover all material, technical and financial aspects of the project; some of the processes offered involved either a breach of patent rights or the adoption of a relatively inferior technology; rapid changes in chemical technology due to the use of petro-chemicals, etc., created doubts about the feasibility of some aspects of the project; in some cases either the equipment or basic materials or both had to be imported from Western sources which were not willing to oblige; finally U.S.S.R. itself accepted certain international patent obligations.

Second Five Year Plan: The principal objectives of the Second Plan were:

(a) a sizeable increase in national income so as to raise the level of living in the country;
(b) rapid industrialization with particular emphasis on the development of basic and heavy industries;
(c) a large expansion of employment opportunities; and
(d) reduction of inequalities in income and wealth and a more even distribution of economic power.

The basic strategy of the Second Plan was stated lucidly in the Mahalanobis Draft Plan frame. The food and agricultural raw materials problem, it was believed, had approached towards a solution; the time was, therefore, ripe for a massive push to industrialization. To achieve the four-fold objectives of a high rate of growth (defined more in terms of investment than output or consumption), high employment potential, minimum foreign exchange cost over a period of time, and price stability, the Mahalanobis draft proposed concentration on the building up of heavy industry. The extra demand for consumer goods resulting from this investment was to be met in full by the expansion of cottage industries, which were assumed to have low capital and high labour requirements in relation to output. Largescale units in consumer goods industries should not expand except to the limit of their existing capacity because such expansion would (i) create a demand for foreign exchange for the import of the necessary equipment which would not be indigenously avilable (the new heavy industry would be building machines for machines), and (ii) create excess demand for consumer goods. This strategy was spelt out in the Plan itself as follows:

"....if industrialisation is to be rapid enough, the country must aim at developing basic industries and industries which make machines to make the machines needed for further development. This calls for substantial expansion in iron and steel, non-ferrous metals, coal, cement, heavy chemicals, and other industries of basic importance. The limitation is, of course, the scarcity of resources and the many urgent claims on them. Nevertheless, the criterion is not merely

immediate needs but the continuing and expanding needs in the coming years as development goes forward. India's known natural resources are relatively large, and in many of these fields, as in steel, for instance, she is likely to have a comparative cost advantage. It is desirable to aim at proceeding farthest in the direction of developing heavy and capital goods industries which conform to this criterion. "Investment in basic industries creates demands for consumer goods, but it does not enlarge the supply of consumer goods in the short run; nor does it directly absorb any large quantities of labour. A balanced pattern of industrialisation, therefore, requires a well-organised effort to utilise labour for increasing the supplies of much needed consumer goods in a manner which economises the use of capital. A society in which labour is plentiful in relation to capital has to develop the art and technique of using labour-intensive modes of production effectively — and to much social advantage — in diverse fields. Indeed, in the context of prevailing unemployment, the absorption of labour becomes an important objective in itself. In using labour-intensive methods, it may well be that the cost of product is somewhat higher. This entails a sacrifice which can be reduced through technical and organisational improvements. In any case, a measure of sacrifice in the matter of consumption is inevitable while the economy is being strengthened at the base. The sacrifice diminishes as more power, more transport, and better tools, machinery and equipment become available for increasing the productivity of consumer goods industries, and in the long run the community gets increasingly large returns. Meanwhile, the stress on utilisation of unutilised or under-utilised labour power alleviates the immediate problem of unemployment. Another point that may need stressing in this connection is that the use of labour-intensive methods often implies that a smaller proportion of the incomes generated is available for saving and re-investment. Steps must be taken to ensure that this does not happen on any significant scale.

"....conditions have to be created in which modern techniques can be adopted and introduced more and more in (small and cottage industries) and the transition should be orderly .. development along new lines has to be the keynote of policy. As national income increases, demands get diversified, and as power, transport and communications are developed, the scope for small enterprises of various kinds. which either cater for new consumer demands or function in a way complementary to large-scale industry, increases steadily. From the point of view of enlarging employment opportunities as well as of increasing production, these new lines of development have to be fostered energetically.

"The sector of village and small-scale industry has to be organised

more and more on co-operative lines so as to enable the small producer to secure the advantages of buying raw materials and selling his products on a large scale, of getting access to institutional credit and of utilising improved methods and techniques. An integral programme of production may in some cases work on the basis of differential taxation; in others, buying over of the product at stated prices and a state-sponsored or co-operative marketing arrangement may be needed."

The programme for expansion of industrial capacity was conceived in terms of the following priorities:

1. increased production of iron and steel and of heavy chemicals, including nitrogenous fertilizers, and development of heavy engineering and machine building industries:
2. expansion of capacity in respect of other developmental commodities and producer goods such as aluminium, cement, chemical and pulp, dye-stuffs, and phosphatic fertilizers and of essential drugs;
3. modernization and re-equipment of important national industries which have already come into existence, such as jute, cotton and sugar;
4. fuller utilization of existing installed capacity in industries where there are wide gaps between capacity and production; and
5. expansion of capacity for consumer goods keeping in view the requirements of common production programmes and the production targets for the decentralized sector of industry.

These priorities were justified at some length: (a) steel determines the tempo of progress as a whole and India has a comparative advantage in its production, (b) heavy engineering is a natural corollary to iron and steel and internal availability of machinery would remove the difficulties and uncertainties of dependence upon external aid, (c) fertilizers are essential for agricultural development, (d) cement ranks next only to iron and steel as a development commodity, and (e) modernization of equipment in cotton and jute is necessary for earning foreign exchange, but additional production in these industries should be achieved to the maximum extent possible through greater use of idle capacity to save capital resources.

The proposed outlay on village and small industries was raised substantially to Rs. 200 crores, of which Rs. 55 crores was specifically for small as distinct from cottage and village industries. The amount was distributed as shown in Table IX.

This amount was exclusive of the provision made for these industries under rehabilitation of displaced persons (Rs. 11 crores) and community development blocks (Rs. 1.5 lakhs each). The role of the Centre was restricted to all-India administrative, research and hire-purchase schemes

TABLE IX

Second Plan Outlay on Village and Small Industries

(Rs. crores)

		Rs. crores	
1.	Handlooms	60	
2.	*Khadi*	17	
3.	Village industries	39	
4.	Handicrafts	9	
5.	Small industries	55	
6.	Sericulture and coir	6	
7.	General administration and research	15	
	Total:	200	(excluding working capital requirements)

costing in all Rs. 25 crores; the remaining amount of Rs. 175 crores was in the State sector. The problems of small industries, their urban or semi-urban location, use of machines, power and modern techniques, were viewed in a separate perspective for the first time. Their performance in training for entrepreneurship was strikingly demonstrated by the manufacture of bicycle and sewing machine parts in Ludhiana. A working definition for identifying them was laid down: all units or establishments having a total capital investment of less than Rs. 5 lakhs and employing less than 50 persons when using power or less than 100 persons when not using power. Facilities for their technical, financial and marketing assistance on a basis separate from village and cottage industries and handicrafts were recommended for the first time: Small Industries Service Institutes and industrial extension centres in each State, National Small Industries Corporation for hire-purchase of equipments and marketing assistance, and industrial estates to discourage further concentration of population in large urban centres were designed specifically for their development.

Planned regional diffusion of industrial activity had received little attenton in the First Plan. Only marginal deviations could be made from the compulsions of economic and technical considerations in the case of the larger industries, but the claims of relatively backward areas were nevertheless kept in view in the location of public sector projects, including steel plants. Regional patterns of development could be and were fostered for a wide range of consumer goods and processing industries. These included cotton textiles (especially spinning), sugar, light engineering such as bicycles, sewing machines, electric motors and radio receivers, re-rolling of steel and non-ferrous metals from billets and semis, moulded plastics, and processing of drugs in bulk. Cotton mills were licensed in Rajasthan, Orissa, Assam and Punjab by fixing State quotas and persuading applicants to locate in these States. New sugar factories (especially co-operatives financed by State Governments, Industrial Finance Corporation and State Bank) and distilleries

were encouraged in Andhra, Tamil Nadu, Karnataka and Maharashtra, steel re-rolling mills in Assam, Madhya Pradesh, Kerala and North Bihar, and factories for tyre and tubes, cables and electric lamps in Kerala. A synthetic rubber plant based on industrial alcohol was established in Uttar Pradesh. The decision to sell steel at a uniform price at all railheads was an important step forward in the wider dispersal of light engineering industries.

Industry claimed about 17 per cent of total public outlay in the Second Plan, as compared with 8 per cent in the First. In absolute terms, the allocation for large-scale industry was raised from Rs. 94 crores in the public sector and Rs. 233 crores in the private sector in the First Plan to Rs. 620 crores and Rs. 575 crores (latter include mining), respectively. Almost the entire public sector outlay, which actually came to Rs. 870 crores or 56 per cent of total investment in organized industry, was for development of basic industries, such as iron and steel, coal, fertilizers, heavy engineering and heavy electrical equipment. This helped to strengthen the public sector and "also to create conditions conducive to a rapid growth of medium and light industries in the private sector." The net output of factory establishments was to increase by 64 per cent and of capital goods by 150 per cent. Measured by the Index of Industrial Production (1956-100), the actual increase was about 40 per cent in the aggregate, 118 per cent for capital goods, 60 per cent for intermediate and producer goods (including mining and electricity), and 19 per cent for consumer goods.

TABLE X

Second Plan's Major Industrial Targets and Achievements

Item	*Unit*	*Production target*	*Actual production*
1. Steel finished	m. tonnes	4.37	2.23
2. Fertilizers : N	th. tonnes	294.6	111.8
P	th. tonnes	121.9	55.9
3. Textile machinery	Rs. crores	17.0	9 0
4. Cement machinery	Rs. crores	2.0	0.6
5. Paper machinery	Rs. crores	4.0	—
6. Aluminium	th. tonnes	25.4	18.8
7. Newsprint	th. tonnes	61.0	25.4
8. Chemical pulp	th. tonnes	30.5	—
9. Soda ash	th. tonnes	233.7	147.3
10. Caustic soda	th. tonnes	137.2	101.6
11. Dye-stuffs	m. kg.	10.0	5.2
12. Cement	m. tonnes	13.2	8.6

The main industrial targets of the Second Plan which were not achieved were those set for iron and steel, fertilizers, certain items of industrial machinery (*e.g.*, paper and cement plant machinery, heavy castings and forgings), aluminium, newsprint, raw films, chemical pulp, soda ash,

caustic soda, dye-stuffs and cement — and for most cottage and village industries which were to supply the additional consumer goods. The shortfalls were concentrated in those very industries which were crucial for future growth and price stability. Investment in most cases exceeded the targets (Table XI), largely due to price increases but partly also due to initial under-estimation of requirements, but production remained in arrears. There were specific reasons in each industry for under-fulfilment of production targets, in addition to the shortage of foreign exchange that began to be felt acutely after 1957.

TABLE XI

Second Plan : Investment In Industry

(Rs. crores)

	Plan estimate	*Actual investment*
1. Metallurgical industries	503	770
2. Engineering, light and heavy	150	175
3. Chemical	132	140
4. Cement, electric porcelain and refractories	93	60
5. Petroleum refining	10	30
6. Paper	54	40
7. Sugar	51	56
8. Textiles: (i) natural fibres	36	50
(ii) rayon	24	34
9. Others	42	115
10. Replacement and modernization	150	150
Total:	1,244	1,620

The Principal Deficiencies and Defects of Industrial Policy as Declared and Implemented: The private enthusiasm for industrial expansion that was aroused in the latter half of the First Plan received a fresh stimulus during the Second Plan from heavy deficit financing, relatively liberal import licensing, easier availability abroad of capital goods, and liberal distribution of industrial licenses. The wide-spread urge for industrialization and the material requisites of well-being was a favourable development but neither at the fiscal and specific level nor within the planning-cum-price mechanism, were there any means in operation for the direction of private investment in accordance with plan priorities. Barring the expansion of private steel and shipping brought about primarily by massive financial assistance and assurance of demand, rather than by price incentives, the official attitude in general was that, so long as a project was in the Plan, every industry and every industrial license granted had an equal priority. Tax concessions like development rebate, tax holiday, extra depreciation, etc., were available in identical measure to nearly all industries, instead of being graded or differentiated

according to priorities. There was, similarly, no grading or differentiation in the provision of finance, power, land, materials, water, etc. While it would be quite incorrect to say that the essential industries, being subject to price and other controls, lacked incentives to expand or could not mobilize capital — since they did in fact expand and raise large amounts of capital — there was no self-correcting or plannig mechanism for restricting investment or production in relatively less or non-essential industries as resources, especially foreign exchange, became more scarce than anticipated. This became quite clear after the foreign exchange crisis in 1958: adequate foreign exchange could not be found for power and import of components, spare parts and materials for essential users but imports of equipment for less essential industries were deemed to have high priority just because they were capital goods.

In the course of licensing industrial projects and later, foreign collaboration, sufficient attention was not given to the economics of optimum location and scale of production. The underlying belief was that economic concentration would be avoided by licensing a relatively large number of units in each industry, dispersed over a number of regions, each having a separate foreign collaboration from a different country as far as possible. Consequently, uneconomically small units proliferated, and burdened the economy with high capital (especially foreign exchange) costs and low utilization of capacity as the shortage of materials became more pronounced. Each collaborator tended to install a different kind of plant, spare parts of which had to be imported for a long time from the country of origin alone, and each made a separate charge for imparting his technology and skill. The country paid several times over for each such technology and skill, which could have been avoided with fewer but larger plants and a policy for the use and transfer of trained manpower. In the event, even an increase in the concentration of economic power was not avoided. In certain industries like cement, on the other hand, the policy of denying substantial expansion to large units tended to slow down the growth of output since those who received the licenses were in many cases unable to utilize them.

The Mahalanobis strategy could not be accepted in full, among other things, owing to the pressing demands for higher consumption — and consequent import of equipment for consumer goods production. Agricultural failures and higher food prices, and transport bottle-necks led to price inflation which, became, paradoxically, the only instrument, a crude and indiscriminate one, of restraining consumption, with almost no support from fiscal, monetary and direct policies. Even if these mishaps had been avoided, the strategy would not have worked so neatly as its author postulated for some of its assumptions proved to be unrealistic or premature. One of the major premises of this strategy was that cottage industries were capital-saving. This proved incorrect for

it was found in the case of the *Ambar Charkha*, to take only one example, that it required more labour as well as more capital per unit of output as compared with mill spinning and the product was not entirely suitable for handloom weaving. In spite of rebates, subsidies, freight concessions, etc., the products of cottage industries (handlooms excepted) were not acceptable to consumers on grounds of both price and quality. Given the existing technology, there was a limit beyond which the total output of each cottage industry could not increase. The organizational effort required for improved technology and marketing was also seriously under-estimated. And, to top it all, the official predilections in favour of *khadi* tended to distract attention from the promotion of intrinsically more promising industries like footwear, coir, *bidi*, handicrafts, and small establishments using power.

The public sector was expected to and did play a crucial and strategic role in raising investment and filling gaps in the industrial structure: three steel plants, lignite, ship building, fertilizers, heavy electricals, machine tools, antibiotics, cables, railway locomotives and coaches, besides large expansion in coal, railways and power, all these started the process of changing the face of the country. But the costs of nearly all of them exceeded by far the Plan estimates, and fulfilment of production targets was inordinately delayed, thereby upsetting the foreign exchange budget and the production programmes of interrelated industries. Equally serious was the failure of the public sector to develop in good time a large technical and managerial cadre and sufficient trained labour to supply its manpower requirements and, wherever necessary, to provide the necessary guidance to the private sector. The development of such a cadre was an important part of the Industrial Policy Resolution.

While the plan progressed — and more than 80 per cent of its physical targets were achieved — many of the fundamental questions of industrial planning in a mixed economy were not answered; they were, in fact, not raised at all in the context of planning as such. What level and structure of direct business taxation would ensure private investment in accordance with priorities and also offset the disincentive to efficiency and cost reduction brought about by a high statutory rate of income tax? Should a scarcity premium be attached (by means of notional or shadow pricing or through the actual price mechanism) to the use of foreign exchange, domestic capital and essential commodities and, if so, what should be the mechanism for charging this premium in accordance with changing situations and requirements? Granted the objectives, strategy and targets for individual industries, what are the non-market or quasi-market criteria for determining the priorities between them *inter se*? Finally, how is the administration of policy to combine negative fiats with positive directions?

Third Five Year Plan: On the eve of the Third Plan, national income (at 1960-61 prices) had gone up over the decade of planning by 42 per cent to Rs. 14,500 crores and per capita income by 16 per cent to Rs. 330. Industrial production was 94 per cent higher than in 1950-51. The share of public sector industries in the net output of organized manufacturing industries had gone up from 1.5 per cent to 8.4 per cent and much of this increase had taken place in key industries like steel, coal mining and heavy chemicals. Besides the building up of a metallurigical and chemical base for future industrialization, considerable progress had been made in industries manufacturing consumer durables, in small industries and in the modernization and re-equipment of older industries like cotton, jute and sugar, part of it from indigenously manufactured equipment.

Far-reaching gains had been secured in the industrial field but these were insufficient to make any great impact on the general condition of the mass of the population or to alter radically the structure of the economy. Over the decade, national income originating in industry at current prices rose from Rs. 1,460 crores to Rs. 2440 crores, but as a proportion of the total, the increase was from 16 to 19 per cent only, and from 6 to 9 per cent, if factory establishments alone are taken into account. Employment in manufacturing industries rose only 17 per cent but the crude index of productivity went up by 49 per cent.

The principal objective relating to industry in the Third Plan was "to expand basic industries like steel, chemicals, fuel and power, and establish machine-building capacity, so that the requirements of further industrialisation can be met within a period of ten years or so mainly from the country's own resources." Industrial production was to increase by 70 per cent over the five years (at a compound annual rate of 11 per cent) against 30 per cent for national income as a whole. About 29 per cent of total investment, public and private, against 27 per cent in the Second Plan. was allocated to industry and minerals. Total investment in industry of the public sector was targeted to increase from Rs 960 crores (including Rs. 90 crores actual in village and small industries) to Rs. 1.245 crores (including Rs. 150 crores for village and small industries). In the private sector, the targeted increase was from Rs. 850 crores (village and small industries Rs. 175 crores) to Rs. 1,475 crores, of which Rs. 150 crores were for replacement and modernization and Rs. 275 crores for village and small industries. Proposed aggregate investment in large-scale industry, thus, amounted to Rs. 2,720 crores and in village and small industries to Rs. 425 crores.

Of basic importance in the Third Plan was the programme for the expansion of capital and producer goods industries with special emphasis on machine building, and development of managerial skill, technical know-how and designing capacity. In this programme, the public

sector was assigned a key role but the private sector was also expected to play an important part. The share of the public sector in the net output of organized manufacturing industries would rise from 8 per cent to 25 per cent and the bulk of this would comprise capital and producer goods in the fields of metallurgy, industrial machinery, machine tools, fertilizers, basic chemicals and intermediates, essential drugs and petroleum refining. The emphasis was on industries which would help to make the economy self-sustaining, and reduce as rapidly as possible the need for external assistance to purchase these goods and also permit a broadening of the export base. The production of consumer goods was also to be expanded substantially, mainly in the private sector.

The industrial plan for the period 1961-66 was governed by the overriding need to lay the foundation for further rapid industrialization over the next 15 years; at the same time, provision was made to the extent possible for meeting the demand for other manufactured goods over the next five years. Power and fuels, it was anticipated, were likely to be inhibiting factors in the first half of the Third Plan, which might entail forgoing the adoption of industrial processes which make a heavy demand on electric power, notwithstanding their attractiveness. (This fear proved misplaced largely because industrial production failed to achieve the projected growth rate.)

Without departing from the 1956 Resolution, the Third Plan laid much greater emphasis than before on the "supplementary and complementary" nature of the public and private sectors. Specific attention was drawn to the entry of the private sector into nitrogenous fertilizers "in a bigger way than in the past." In pig iron, it was proposed to allow private plants with a maximum capacity of 1.016 lakh tonnes (raised to 3.048 lakh tonnes in 1964 on reconsideration of economies of scale and production requirements) as compared with 15,241 tonnes permitted till then. Programmes for the manufacture of dye-stuffs, plastics and drugs in the private sector were envisaged to be largely complementary to the programme for manufacture of primary aromatic compounds as by-products at steel works and of organic intermediates to be undertaken in the public sector. Similarly, public manufacture of bulk drugs was to be complemented by subsequent processing in the private sector. This change in what may be described as interpretation or implementation of industrial policy resulted, in large measure, from the pace of industrial growth and diversification, both achieved and proposed, and acceptance in general terms by both the sectors of their relative places in integrated development.

Among the general considerations for fixing industrial priorities, the Plan emphasized (i) greater and more intensive utilization of existing capacity through multi-shift operation and/or installation of balancing equipment, (ii) expansion of existing plants in preference to establish-

ment of new units in the interests of quicker completion and bringing down of the investment cost of output, and (iii) accent on those projects which would earn or save foreign exchange and discouragement of those heavily dependant upon import of raw materials. Subject to these, the following priorities were laid down for programmes and projects:

1. Completion of Second Plan projects which were under implementation or were deferred in 1957-58 due to foreign exchange difficulties.
2. Expansion and diversification of the capacity of heavy engineering and machine building industries, castings and forgings, alloy tools and special steels, iron and steel and ferro-alloys and increasing the output of fertilizers and petroleum products.
3. Increased production of major basic raw materials and producer goods like aluminium, mineral oils, dissolving pulp, basic organic and inorganic chemicals and intermediates, including petro-chemicals.
4. Increased production from domestic industries of commodities required to meet basic consumer needs like essential drugs, paper, cloth, sugar, vegetable oils and housing materials.

The Plan did not fail to take into account the growing concentration of economic power in the private sector as a result of the rapid growth of large business groups which had been able to make disproportionate use of the greater and wider opportunities for investment.* "Against the background of the goal of a socialist pattern of society," it stated, "steps would be taken to safeguard against the concentration of development in the hands of a few *entrepreneurs* "leading to complete or partial monopolies."

In the Third as in the Second Plan, care was taken, subject to economic and technical considerations, to disperse the location of new major public projects as well as expansion of existing ones. The claims of under-developed regions have also been kept in view in the licensing of private industrial projects. The progress, programmes and production targets of a number of industries have been examined from time to time with a view to securing the location of new capacity on a zonal basis. Special attention has been paid in the allocation not merely of cotton mills and light engineering industries but also of new industries like aluminium, cellulose acetate, artificial fibres, chemical processing, fertilizers and rubber tyres and tubes, to industrially backward States like Rajasthan, Uttar Pradesh., Assam and Kerala. It has been accepted as a matter of policy that each major public project should act as a nucleus

*In a statement laid before Parliament, it was implicitly admitted by Government that during the calendar years 1960 and 1961, at any rate, licensing policy had, in effect, operated to the advantage of large business groups. (*Company News and Notes*, May 16, 1963, p. 45). This was inevitable to some extent because in the private sector these groups alone had the capacity to undertake large new projects, but such exclusive ability has been tending to get diluted of late.

growth through the establishment of industrial estates in its neighbourhood and that fully developed industrial areas with necessary infrastructure are provided in selected centres in each State.

Village and Small Industries: The main objectives laid down in the village and small industries programme in the Third Plan were:

(i) to improve the productivity of the worker and reduce production costs by placing relatively greater emphasis on positive forms of assistance such as improvement of skill, supply of technical advice, better equipment and credit, etc;

(ii) to reduce progressively the role of subsidies, sales rebates and sheltered markets;

(iii) to promote the growth of industries in rural areas and small towns;

(iv) to promote the development of small-scale industries as ancillaries to large industries; and

(v) to organize artisans and craftsmen on co-operative lines.

There has thus been a clear shift in policy away from the negative and protective attitudes of earlier years in favour of a positive, intrinsically economic programme for placing village and small industries on a sound productive basis. It is clearly recognized that small industries combine the advantages of modern technology and the use of power with those of increased employment and greater opportunity for small *entrepreneurs* as well as for co-operatives. Programmes have been drawn up for the extension of Government guarantees for bank credits to small industries, enlargement of the hire-purchase scheme of the National Small Industries Corporation, larger Government purchases from small and cottage industries, and for the setting up of 300 new industrial estates against 120 sanctioned (and 60 commissioned) during the Second Plan. Regarding industrial estates, there is still an official belief that they could be the instrument for dispersion of industries away from congested areas. The record of industrial estates actually in operation, however, indicates clearly that most of the successful estates are those which are located close to large industrial centres.

This shift in policy is confirmed by the minor increase in the outlay allocated for traditional village and cottage industries and the greater concentration proposed on small industries and industrial estates: (Table XII)

Government purchases of the products of small-scale industries have increased considerably since 1951 (Table XIII). About 70 items are reserved for exclusive purchase from this sector.

Fiscal and Allied Developments: As foreign exchange difficulties became more serious, returns from investments in public enterprises were found small and getting delayed, and it was realized that planning

TABLE XII

Outlay on Village and Small Industries : Second and Third Plans

(Rs. crores)

	Second Plan Actual	*Third Plan*
1. Handlooms	30	34
2. Powerlooms in handloom sector	2	4
3. *Khadi* & village industries	82	92
4. Sericulture	3	7
5. Coir	2	3
6. Handicrafts	5	9
7. Small industries	44	85
8. Industrial estates	12	30
Total	180	264

TABLE XIII

Government Purchases of Small Industry Products

(Rs. crores)

	Total	*Annual average*
First Plan period 1951-56	7	1.4
Second Plan period 1956-61	21	4.2
Third Plan period (1961-Dec. 1964)	92	25 5

and the price mechanism were not inherently antithetical but could usefully supplement each other, a number of changes in policy and policy administration were effected from 1963 onwards. Some of these concerned licensing procedures, quicker utilization of foreign aid, and removal of price and distribution controls on certain essential commodities like steel and chemicals had, therefore, a direct bearing on industrial policy. Other changes related to tax concessions, export incentives, import duties, monetary policy and large-scale financial assistance and had, at first sight, only an indirect relationship with industrial policy but were, in fact. of fundamental significance for directing private investment — and for that matter disciplining the managements of public enterprises, too — into consistency with plan priorities and the realities of pricing of scarce inputs.

Much of the licensing, estimated at about 80 per cent of the total for the Third Plan period, was completed almost *en bloc* in or about 1960. Measures were taken from 1962 to start weeding out the dormant licenses, and to list the industries in which no further licenses would be given. At the same time, on the recommendation of the Swaminathan Committee, a list of priority industries was drawn up for prompt clearance of licensing and foreign exchange formalities. There was, however, no laying down of priorities within this list or assurance of full and prompt

satisfaction of exchange requirements for equipment and materials to the industrial units concerned; in some cases, *e.g.*, alloy steel, a high priority in licensing was not matched by expeditious approval of liberal terms of foreign collaboration which were in fact allowed to some low priority industries. The period of validity of licenses for maintenance imports was extended to facilitate continuity of supplies.

The report of the Raj Committee on steel prices and distribution marked a basic change in the attitudes towards controls on the prices and distribution of scarce essential commodities. The committee expressed itself firmly in favour of using the price mechanism for rationing and rationalizing demand and as an incentive for regulating the pace of investment and pattern of production, and restricting distribution controls to the prior satisfaction of priority demands. Price and distribution controls on structural steel were lifted in 1964 and on pig iron in August 1965, and were replaced by increased excise duties to keep down demand.

From January 1963, the raising of the bank rate and subsequent tightening up of credit policies ushered in a policy of dearer money — and higher price of capital, whether borrowed or equity. The setting up of the Industrial Development Bank of India with the promise that this institution would see high priority projects through to completion was expected to cushion high priority investments against the quantitative impact of restrictive monetary policies. The raising of import duties in 1964 and again twice in 1965 as an alternative to devaluation should give a stimulus to import substitution in equipment and materials; their impact on profitability has been cushioned by substantial raising of the rate of development rebate over the entire period of the Fourth Plan for the essential industries listed in the Finance Acts of 1964 and 1965. The absence of any deliberate link between this list of essential industries and that operative for licensing purposes remains a lacuna.

For the first time since the ushering in of planning, the structure of taxation of industry, both direct and of excise duties, now contains differentiated and graded rates on a long-term basis for income tax, development rebate, and credits for additional exports and production. So far as the fiscal and long-term financial aspects of planned industrial policy are concerned, steps have been taken in the direction of integrating market criteria and plan priorities.

Evaluation of Policy: Post-independence industrial policy marks a clear break from pre-independence days, though the conscious adoption of a mixed economy represents a continuity of British (and pre-British) tradition. A public sector existed at the time of independence. In British India it was practically confined to major public utilities and

supply of a part of Government requirements of defence and industrial goods. A few Princely States like Mysore, Travancore, Hyderabad and some small states in Uttar Pradesh, Saurashtra and Madhya Pradesh had ventured directly or indirectly into the production of a limited variety of consumer and producer goods. This species of public sector was not part of any overall programme of industrial development; it was largely the result of various *ad hoc* and vaguely strategic considerations. The Industrial Policy Statements of 1948 and 1956 demarcated the roles of the public and private sectors and also promised official blessings for co-operativization and cottage and small industries. Industry, especially factory industry, has yet to acquire a dominant position in the economy, in terms of both output and employment, but it has climbed to a plateau from which further ascent is assured.

The plan emphasis on heavy industry since 1956 is based on a strategy of development which suits the country's requirements. No feasible alternative has been at the expense of agriculture in the sense that financial or physical resources which could or should have been devoted to agricultural development have been diverted to industry. A substantially higher rate of growth in industrial production, especially of capital and producer goods, as compared with agriculture, is fundamental to the process of development for reasons which are primarily empirical, not ideological.

The annual rate of growth of population increased from 1.33 per cent in 1941-51 to 2.16 per cent in 1951-61, and has risen further since then. The projected rate of increase of national income has, therefore, to be stepped up adequately to raise per capita income in the short run as well as to provide the sinews of faster growth in future. This could be brought about by concentrating on the production of consumer goods, which would raise the standard of living immediately, but this strategy is self-defeating because it does not provide the resources and equipment for sustained growth from within. Given the magnitude of India's requirements, foreign exchange is and will remain the most scarce input in the near future. Exclusive emphasis on consumer goods and neglect of heavy industry would necessitate continued import of even agricultural inputs like fertilizers and agricultural machinery and involve subsequently a demand for foreign exchange for the import of equipment to manufacture these items; even for purely industrial inputs the dependence upon aid would be prolonged, and most industry would continue to remain material-based. The principal deficit items in the economy are metals, machinery and chemicals and it is only when these are progressively manufactured the dependence upon aid can be reduced substantially.

An industrial licence is necessary under the Industries (Development and Regulation) Act 1951 for setting up new or additional industrial

capacity in scheduled industries covered by the Act. The exemption limit for fixed investment was Rs. 5 lakhs till the Third Plan when it was raised to Rs.10 lakhs, and further to Rs. 25 lakhs in 1964. The ostensible purposes of industrial licensing are: (a) to limit industrial capacity within the target set by the plans; and (b) to direct investment in industries according to plan priorities. The policy of industrial licensing has gone through various phases. From 1951 to 1958, licensing tended to be restricted within the plan targets, mainly because the tempo of industrial development was not very rapid and the demand for licences was not overwhelming; imports were allowed reasonably freely and new industrial projects had to face competition from imported goods, unless they obtained tariff protection. The second phase lasted from 1958 to 1961, when the foreign exchange crisis first had its effect. Imports, especially of materials and components, were restricted and Government decided to liberalize the issue of licences, whenever a case for import substitution was made. Licences were issued far in excess (in some cases 25 per cent but normally 10 per cent) of capacity targets in several industries. For example, in paper, spun pipe, steel tube, and many other industries, the licences issued by the end of 1960 were far in excess of the capacity targets set for 1965-66, on the ground that many licensees often failed to establish capacity. The effect of this policy was to make investment plans more akin to those in a free market economy but without being subjected to market discipline. In the third phase, beginning with 1962, industrial licensing again became strict, mainly owing to the growing stringency of foreign exchange, and revocation of licences was initiated. The number of licences issued was 1,363 per year during 1959-61, 1,104 in 1962, 976 in 1963 and 782 in 1964. There were 315 revocations in 1962, 204 in 1963 and 202 in 1964.

Generous and *en bloc* licensing during the period 1958-1961 for Second and Third Plan capacity targets, together with restrictive import licensing which reduced statutory protection to insignificance (Appendix IV for the list of protected industries as of March 1963), imposed great strains on foreign exchange resources and the order books of domestic machinery manufacturers. No explicit criteria have been laid down to guide licensing policies, except for the banned, restricted and priority lists published since 1962. Some conclusions can, however, be drawn from the decisions made:

1. In some industries where economies of scale operate, certain minimum size is laid down, *e.g.*, paper in the First and Second Plan Industrial Programmes, but in most other industries where also economies of scale operate, there has been no much insistence.
2. Since regional decentralization is favoured, applications for location in backward areas receive preferential treatment.

3. Licences are issued to new *entrepreneurs* in preference to existing business houses in order to broaden the entrepreneurial base.
4. To reduce monopoly power, licences are given to those applicants, including some from large business houses, who do not have any establishment in a particular industry, *e.g.*, Birla in cement and aluminium.
5. Government has fostered consortia for the manufacture of complete industrial plants, *e.g.*, cement, sugar and paper but the licences are issued for specific plant manufacturing only, not for general fabrication, so that, even if their capacity is versatile and idle, they cannot change over to the manufacture of other plant.
6. To reduce the strain on foreign exchange, licensees have been required in some cases to manufacture the required components or intermediates, *e.g.*, pulp for paper, compressors for refrigerators and air-conditioners, intermediates for chemicals and pharmaceuticals, glass tubes for incandescent lamps, plastic materials for polystyrene, apart from the more generalized version of this applied to automobiles, machine tools, etc. This has led in many cases to uneconomical vertical integration and development of captive supplies at the expense of the final consumer.
7. Export obligations have been imposed on certain licensees as a condition for the release of foreign exchange for the import of plant and raw materials, and to cover the liabilities arising out of foreign collaboration.

The impact of licensing on the pace and pattern of growth has been, as observed earlier, uneven and quite often unrelated to priorities. Though investment opportunities have been far larger than the nternal and external resources available, no criteria have been laid down for undertaking the manufacture of specified items according to their suitability for economic manufacture. Consequently, in many industries, the cost of manufacture has been avoidably higher than international levels. Quite often, when an item comes to be domestically manufactured, users can continue to live off their old stocks, as happened in the case of polystyrene in 1958, PVC in 1962, synthetic rubber and ball-bearings in 1964-65. Over-licensing and *en bloc* Plan licensing, instead of phased issues, have tended to slow down the actual utilization of licences due to fears of over-production. Instead of the normally expected plan criteria of maximum value added or maximum net foreign exchange saved or maximum employment provided, there have been, by and large, only *ad hoc* decisions taken "on the merits of each proposal," which inevitably lead to delays.

To return to the course of licensing policy between 1966 and 1968, Government exempted a number of industries from the licensing provisions of the Act. The exempted industries were those which did not

involve any substantial import of components or raw materials. At the same time, industries in respect of which protection to cottage and small industries was important, were not delicensed.

In 1966, Government made an announcement of policy designed to facilitate further utilization of installed capacity. Licenced or registered industrial undertakings were told they were free to diversify their production upto 25 per cent of the licenced or registered capacity without formally obtaining an industrial licence. But this was subject to certain conditions: no additional plant and machinery was installed except minor balancing equipment obtained indigenously; no additional foreign exchange expenditure was involved; and the items into which production was diversified were not reserved for the small scale sector. In a clarification in December 1967, Government said if the industries which had diversified their production, were priority industries, even imports of raw materials could be allowed for the purpose. In diversifying production, however, there should be no additional demand for indigenous raw materials.

In the early sixties, a number of studies were conducted which revealed that there had been a growing tendency towards concentration of economic power in the hands of the captains of industry in the process of industrial development. The background to these studies was the reference made by the then Prime Minister, Jawaharlal Nehru in the Lok Sabha on August 22, 1960, moving that the Third Five Year Plan draft outline be taken into consideration, he said, "It is said that the National Income over the First and Second Plans has gone up by 42 per cent. A legitimate query is made: where has this gone? To some extent of course, you can see where it has gone. I sometimes do address large gatherings in the villages and I can see that they are better fed and better clothed, they build brick houses .. Nevertheless, this does not apply to everybody in India. Some people have hardly benefited. Some people may even be facing various difficulties. The fact remains, however, that this advance in our National Income, in our per capita income has taken place; and I think it is desirable that we should enquire more deeply as to where this has gone and appoint some expert committee to enquire into how exactly this additional income that has come to the country or per capita has spread "

Accordingly, a committee headed by P. C. Mahalanobis was appointed in October 1960. One of its terms of reference was "to ascertain the extent to which the operation of the economic system has resulted in concentration of wealth and means of production".

In its Report submitted in February 1964, the Committee, among other things observed "that the working of the planned economy has contributed to the growth of big companies in Indian industry. The growth of the private sector in industry and especially of the big com-

panies has been facilitated by the financial assistance rendered by public institutions like the Industrial Finance Corporation, the National Industrial Development Corporation, etc." The Committee referred to various other measures including tax incentives and pointed out that big enterprises were evidently in a better position to take advantage of such facilities. In the use of bank credit, for industrial expansion, the main beneficiaries have been the big and medium enterprises. The Committee's conclusion was: "Despite all the countervailing measures taken .. concentration of economic power in the private sector is more than what could be justified as necessary on functional grounds." The Committee pointedly said that industrial licensing was an important instrument for preventing the emergence of industrial monopolies "though this objective has to be constantly balanced against the equally imperative need of promoting efficiency and productivity." The Committee drew attention to its own limitations and emphasized the importance of collecting "more comprehensive and detailed information regarding the many aspects and ramifications of economic power and controls in the private sector" in order to formulate an appropriate policy.

Government, therefore, appointed the Monopolies Inquiry Commission headed by K.C. Das Gupta, a judge of the Supreme Court in April 1964. It was asked "to enquire into the existence and effect of concentration of economic power in private hands."

The Commission, distinguishing between "productwise concentration" and "countrywise concentration", pointed out that "the planned economy which the Government decided to accept for the country as the quickest way to achieve industrialisation on the right lines has proved to be a potent factor for further concentration." An important reason for concentration, in the opinion of the Commission was that "big business was at an advantage in securing the licences for starting new industries or for expanding the existing capacity. We are convinced that the system of controls in the shape of industrial licensing, however necessary from other points of view, has restricted the freedom of entry into industry and so helped to produce concentration." The Commission also spoke of the advantage which business had over small people in obtaining assistance from banks and other financial institutions as another helpful factor in the growth of concentration.

At the instance of the Planning Commission, Prof. R. K. Hazari reviewed the operation of the industrial licensing system over the First and Second Plan periods and made an Interim Report in December 1966. One of his conclusions was that the large and medium business groups enjoyed a higher ratio of approval in licensing applications as compared to others and that their share in the investment applied for and approved had tended to rise over the decade. This was specially true about certain

business houses and he named the House of Birlas as the most important of them. During a debate on this Report in the Rajya Sabha in May 1967, the Minister for Industrial Development announced that a committee would be appointed to go into the basic question of the functioning of licensing system and any advantage obtained through it by some of the larger industrial houses.

The Committee headed by S. Dutt and appointed in July 1967, was given a four-point terms of reference. It was asked to enquire into the working of the industrial licensing system to ascertain whether the larger industrial houses had in fact secured undue advantages over others, whether they were disproportionately large and whether there was sufficient justification for it. The second point was the extent to which the licences issued were in conformity with the Government's Industry Policy Resolution 1956. Thirdly, the Committee was asked to inquire whether the basic policies of the public financial institutions had resulted in any undue preference to the larger industrial houses.

The Industrial Licensing Policy Inquiry Committee, as it was called, in its report submitted in July 1969, covered the period between 1956 and 1966 and to the extent necessary developments subsequent to 1966 and during the First Plan. Meanwhile, the Administrative Reforms Commission and the Planning Commission also went into various aspects of industrial licensing policy and recommended certain important changes. Taking these into account as also the recommendations of the Dutt Committee (which spread over a very wide canvas) Government announced a modified Licensing Policy in February 1970. The new policy aims at accelerating the pace of industrial development but avoiding concentration of economic power and providing adequate opportunities and scope for medium and small *entrepreneurs*. It represents an effective and pragmatic compromise between the necessity for greater liberalization on the one hand so as to encourage small and medium *entrepreneurs* and on the other, the need for regulation and control of certain special categories of undertakings such as the larger industrial houses, foreign concerns etc.

The exemption limit for licensing has been raised from Rs. 25 lakhs to Rs. 1 crore. There is provison for substantial expansion without a licence by a maximum of Rs. 1 crore subject to certain conditions. Certain classified industries are not eligible for this exemption: (1) certain special products for which licensing is considered always necessary, products reserved for the small sector and items in the 'core' sector, which have been planned to meet the essential needs of the economy; (2) the larger industrial houses and companies with foreign majority participation where growth and expansion need to be channelled in suitable directions; and (3) exemptions have to be related to certain criteria, particularly foreign exchange. Viewed in this context, the new

licensing policy seeks to provide a framework for accelerated industrial growth consistent with social justice and overall socio-economic objectives.

The broad features of this modified licensing policy are:

1. There is a list of 'core' industries consisting of basic, critical and strategic industries in the economy. Detailed industry plans would be drawn up for them and essential inputs provided on a priority basis. A list of broad groups of industries has been drawn up for inclusion in the 'core' sector for the Fourth Plan. These are:

(1) Agro industries and inputs:
- (a) Fertilizers — Nitrogenous and Phosphatic
- (b) Tractors and power tillers, pesticides (basic chemicals only)
- (c) Rock Phosphate and pyrites

(2) Iron and Steel:
- (a) Iron ore
- (b) Pig iron and steel
- (c) Alloy and special steels

(3) Non-Ferrous Metals

(4) Petroleum:
- (a) Oil exploration and production
- (b) Petroleum refining
- (c) Selected petro chemicals:
  - (i) Integrated petro-chemical complexes
  - (ii) D.M.T.
  - (iii) Caprolactum
  - (iv) Acrilonitric
  - (v) Synthetic rubber

(5) Coking coal

(6) Heavy Industrial machinery:
- (i) Paper machinery
- (ii) Chemical machinery
- (iii) Specialized machine tools
- (iv) Rubber machinery
- (v) Printing machinery

(7) Ship-building and dredgers

(8) Newsprint

(9) Electronics:

Selected electronic components which are deemed to be in the 'core' sector are:
- (i) Resistance, fixed and variable.
- (ii) Condensers or capacitors, fixed and variable.
- (iii) Semi-conductors, including diodes, thick film, thin film and integrated circuits.
- (iv) Connectors, switches and relays.

(v) Transmitting and receiving tubes including cathode-ray tubes.
(vi) Sophisticated micro-wave components and antennas.
(vii) Ferrites and magnets.
(viii) Thirmisters and varisters.

2. In addition to the 'core' sector, all new investment propositions of over Rs. 5 crores will be considered to be in the 'heavy investment' sector. Except for industries reserved for the public sector, undertakings belonging to the larger industrial houses together with foreign concerns and subsidiaries or branches of foreign companies would be expected to participate in and contribute to the establishment of industries in the 'core' and 'heavy investment' sectors.

3. In the 'middle' sector involving investments ranging from Rs. 1 crore to Rs. 5 crores, licences will be given liberally to undertakings outside the larger industrial houses. Applications with foreign exchange implications will, however, be subject to careful scrutiny. Applications from the larger business houses or from enterprises controlled by them and branches or subsidiaries of foreign companies would be considered for expansion where it is found necessary to develop a minimum economic level which would ensure greater cost efficiency or if the industries are established in industrially under-developed areas. The larger industrial houses and foreign companies would also be licensed in the middle sector if a substantial export commitment of 60 per cent or more of the new or additional production is given. The obligation will have to be achieved in 3 years. A similar obligation minimum of 75 per cent has been laid down for the small scale sector as well.

4. New undertakings or substantial expansion of units requiring investment of Rs. 1 crore or less will not need a licence under the Industries (Development and Regulation) Act. This exemption is, however, available only to undertakings or categories of undertakings which have existing assets of less than Rs. 5 crores and which (a) do not belong to the larger industrial houses, (b) do not need Rs. 10 lakhs or more than 10 per cent by way of foreign exchange for import of machinery and equipment, whichever is less, and do not require foreign exchange except for the marginal import of raw materials, components and the like, (c) are not foreign companies or branches or subsidiaries of foreign companies (such companies being those where more than 50 per cent of paid-up capital is in the hands of non-Indians or non-residents), and (d) are not included in the category of dominant undertakings.

5. The existing policy of reservation for the small scale sector will be maintained and its area extended. In respect of agro industries, preference will be given to co-operatives.

6. The 'joint' sector concept recommended by the Industrial Licensing Policy Inquiry Committee has been accepted. In future, it is in-

tended that there would be greater participation in management, particularly at policy levels, by public financial institutions in the case of major projects involving substantial assistance from them. These financial institutions would be able to exercise option for converting bonus into equity either wholly or partly within a specified time.

7 The role of the public sector has been reoriented to cover major production gaps likely to develop in the economy, particularly in short gestation and quick yielding projects, including consumer industries and intermediates.

8. The new licensing policy lays great stress on the development of export oriented industries. It is recognized as part of Government policy that industrial capacity has to be consciously built up in those fields in which India has a comparative advantage and where favourable trends are emerging in the international markets.

III. Growth of Industries since Independence

Large Scale Industries: Industrial progress in the first two Five-Year Plans (1951-61) has been described as the beginning of an industrial revolution in India. Growth and diversification of industry were quite remarkable and particularly rapid during the Second Plan period. Measured by the index of industrial production (1956—100) output grew at an annual average rate of 6.3 per cent between 1951 and 1955 and 8.3 per cent during 1955-60. The average rate for the next four years (1960-64) was 8.6 per cent. With 1956 as base, production of capital goods rose from 45 in 1951 to 264 in 1964, that of intermediate goods (including fuel and power) from 71 to 212 while consumer goods, which have a weightage of as much as 53 per cent, rose from 79 to 136 only. In overall terms, organized industrial production had practically doubled during the decade. The index of industrial production had risen from 100 in 1950-51 to 194 in 1960-61,

In this ten-year period, three new steel mills, each with about a million tonne capacity were completed in the public sector and two existing steel works in the private sector had been doubled so as to bring their ingot capacity to two and one million tonnes, respectively.

The foundations had been laid of heavy electrical and heavy machine tool industries, heavy machine building and other heavy engineering equipment. Production of machinery for the cement and paper industries had begun for the first time. There were spectacular increases on a wide front in the field of chemical industries leading not only to larger units and greatly increased production of basic chemicals such as nitrogenous fertilizers, caustic soda, soda ash and sulphuric acid, but also to the manufactures of several new products as for example: urea, ammonium phosphate, penicillin, synthetic fibres, industrial explosives, polythalyne, newsprint and dye-stuffs. The production of many other

industries increased substantially. Of these may be mentioned bicycles, sewing machines, telephones, electrical goods and appliances, textile and sugar machinery, petroleum, non-metallic minerals, footwear, etc.

In spite of these far-reaching gains and impressive growth, the achievements have not been adequate enough to make any great impacts on the general condition of the masses of the population or radically to alter the structure of the economy. Compared with the targets set, there have been some large shortfalls. The combined output of steel by the three new public sector steel plants was only 0.6 million tonnes in 1960-61 as against the target of 2 million tonnes. Similarly in the private sector Tata Steel Mill the actual output of saleable steel for the Second Plan period was only 4.5 million tonnes as against 5.2 million tonnes forecast by the Tariff Commission. In the field of fertilizers there were delays in the completion of the projects followed by teething troubles. Delays occured in the Electrical Plant at Bhopal mainly due to foreign exchange difficulties. The Heavy Machinery, the Mining Machinery and the Foundry Forge Projects were far behind schedule in the initial stages of construction. These and other projects showed that the gestation period, especially in heavy engineering industries, was generally longer than expected.

The main industrial targets which have not been achieved were those set for iron and steel, fertilizers, certain items of industrial machinery such as paper and cement plant machinery, heavy castings and forgings, aluminium, newsprint, raw fibres, chemical pulp, soda ash, caustic soda, dye-stuffs and cement. The shortfalls were in those very industries which were of crucial importance and whose economies of benefits were taken into account at the beginning of the Third Five Year Plan (Table XIV).

TABLE XIV

Production Targets for 1960-61 and Performance

	Unit	Production Targets	Production Actually
1. Finished steel	million tonnes	4.3	2.2
2. Nitrogeneous fertilizers	000 tonnes	295.0	112.0
3. Phosphatic fertilizers	000 tonnes	122.0	56.0
4. Textile machinery	Rs. crores	17.0	9.0
5. Cement machinery	Rs. crores	2.0	0.6
6. Paper machinery	Rs. crores	4.0	—
7. Aluminium	000 tonnes	25.0	18.5
8. Newsprint	000 tonnes	61.0	25.0
9. Chemical pulp	000 tonnes	30.0	—
10. Soda ash	000 tonnes	234.0	147.0
11. Caustic soda	000 tonnes	137.0	100.0
12. Dye-stuffs	million	22.0	11.5
13. Cement	million tonnes	13.0*	8.5

*Revised to 10—11 million tonnes in May 1958.

Most of the other targets of capacity and production were approximately fulfilled and in some cases exceeded as, for example, power driven pumps, diesel engines, electric motors, ACSR cables, electric fans, radio receiving sets and sugar.

The Planning Commission reported that, broadly speaking, industrial advance had been in keeping with the avowed object of enabling the economy to reach, as soon as possible, the stage of self sustaining growth, for, despite the shortfalls, notable progress had been achieved in the capital goods industries.

Set-back in Growth: A period of eight years comprising the Third Plan and three Annual Plans impressed a markedly uneven industrial growth. In the first four years, conditions were relatively favourable but the following three years were a period of considerable stress and strain in the economy. The growth rate declined first slowly and then steeply till it reached a stage of virtual stagnation. The index of industrial production (1960 as base) stood at 8.2 per cent in 1961-62, 9.6 per cent in 1962-63, 9.2 per cent in 1963-64 and 8.8 per cent in 1964-65. Deterioration set in thereafter and the index fell to 5.3 per cent in 1965-66, 0.2 per cent in 1966-67, and 0.5 per cent in 1967-68. The set-back, among other causes, was due to low rates of growth in textiles and food industries on the one hand and metals and machinery industries on the other. In many of these industries, there was a fall in absolute output. In 1968-69, however, there was a sharp recovery and industrial production recorded a rise of 6.2 per cent.

Of the several causes that led to the decline from 1964-65, the most important were the dislocation caused by the India-Pakistan conflict in 1965 and two successive draughts. Many industries were severely affected by the shortage of raw materials and components because of the stoppage of external aid in 1965. Although aid was resumed later on and the import policy for raw materials liberalized after devaluation, new factors added to the difficulties. The two bad agricultural years led to considerable decline in savings, investments and purchasing power. Agricultural raw materials for industrial production were in short supply.

On the other hand, completion of projects added to capacity. But subdued demand accumulated the unutilized capacity in many industries, especially in the capital goods industries. Although imported raw material position was easy, depressed demand prevented full exploitation of industrial potential. The inflationary environment and the increase in the cost of projects as a result of devaluation led to serious problems. To some extent, the position was relieved by a determined effort to find markets abroad.

Agricultural production improved in 1967-68 and consequently industrial production and investment showed an upward trend. The improve-

ment in agriculture was maintained in 1968-69 and capacity utilization in many industries also improved. Production in some industries like machine tools and cables remained at comparatively low levels but the better utilization of capacity in them is dependent on the increase in the tempo of investment.

Despite these set-backs, there has been much contribution to a diversified industrial structure. Substantial capacity has been created in many new lines. Several large projects initiated earlier, have gone into production and this has helped in the expansion of capacity, through indigenous effort in vital sectors like iron and steel, mining and power generation. Virtual self-sufficiency has been achieved in the supply of equipment and rolling stock for rail and road transport and communication. There has been appreciable increase in the production capacity of steel and non-ferrous metals. Capacity is being expanded in petroleum, fertilizer and petro-chemical industries. In many industries, it would be possible by a fuller utilization of existing capacity to achieve higher levels of production in the Fourth Plan. Design and engineering capabilities have been expanded. Process technology has been either acquired or developed to enable the planning, designing and construction of industrial projects with maximum indigenous efforts in fields like fertilizers, rayon and dissolving pulp.

The industrial policy over the years has undoubtedly fostered growth and has created a strong and sophisticated industrial base. At the same time certain inherent shortcomings and difficulties have surfaced. Experience has shown that it was not possible to ensure adequate phasing of targets of production laid down in the Plans and to review them periodically for adjustments as changing situations required. Consequently in certain industries capacity in excess of requirements was created while in some others capacity fell short of needs. The bunching of licensing and inadequate implementation led to imbalances in some sectors of industry. In some cases, though licences were issued to the full extent of requirements and sometimes even more, actual manufacturing capacity that was created fell far short. Detailed controls put considerable strain on administrative machinery and also delayed implementation and did not always secure the desired objectives. The private sector displayed inadequate cost consciousness and had no appreciation of the imperative of reducing costs because of the existence of a sellers' market in India.

Recent Industrial Production Trends: In 1970-71, the economy generally maintained its overall momentum of growth. In certain areas, the economy showed an encouraging improvement over the previous years' performance. In other areas, however, there were signs of certain disturbing trends emerging.

The national income in real terms grew at an estimated rate of 5 to

5.5 per cent for the second successive year strictly in line with the Fourth Plan target. To a large extent, this rise was due to a 6 per cent growth rate achieved in agriculture, and in turn, to an 8 per cent growth rate in foodgrains production (109.5 million tonnes). Wholesale prices continued to be under pressure throughout the year and reached an increase of 3.1 per cent during 1970-71, slightly lower than 4 per cent recorded during the previous year. This stabilizing trend was reflected in a welcome decline of 2.4 per cent in the prices of foodgrains and of 5.1 per cent in the prices of industrial raw materials.

Exports during the year registered an 8.3 per cent increase as against 4.1 per cent in 1969-70. Imports, however, increased by 2.9 per cent during the year as against a steep decline of 17.1 per cent in the previous year.

The general index of industrial production at 180.8 for the year 1970 reveals a rise of 4.8 per cent over the previous year as compared with 7.1 per cent rise in the 1969 over that of 1968. It would appear that industrial revival that succeeded the recession years of 1966-68 has since been followed by a deaccelerating industrial trend in 1970.

The index of industrial production in 1970 by groups and sub-groups shows that apart from "electricity generated" which showed a rise of 11 per cent and "mining and quarrying" which managed to maintain its production levels, the major group "manufacturing" showed a growth rate of 4.4 per cent.

The major growth leaders in the group "manufacturing" recorded an increase of between 12 and 19 per cent. These are manufacturers of aluminium, copper, food, miscellaneous and electrical machinery.

Industrial groups that have maintained a reasonably healthy growth rate, between 4 and 10 per cent include jute textiles, chemical manufacture, non-metallic minerals, paper products, beverages and tobacco, petroleum refinery products, non-electric machinery, written textiles and metal products.

Areas where production levels have either declined or have just been maintained include iron and steel, cotton textiles, footwear, wood and cork products, leather and fur products, rubber products and transport equipment.*

**Note:* While 'textile manufacture' has been assigned a weight of 27 per cent in the index of industrial production, the item 'cotton textiles' carries a weight of 21 per cent. As a result, comparative stagnation in the production of cotton textiles tends to pull down the entire general index.

Similarly, the item "iron and steel" carries a weight of 6 per cent in the general index and a percentage decline of 6.9 per cent in production has affected the production of a number of steel based industries

In the case of items such as "footwear" and "rubber products", the relative stagnation or decline in producton could be ascribed to statistical reasons. Some of the industrial units borne on the registers of DGTD have been transferred to those of the small scale sector.

Remedial Measures: Several steps have been taken to improve the rate of industrial production. Licensing of capacity, both for setting up new capacity and for expansion of existing units, has been accelerated. Procedure has been streamlined to permit consideration of future applications. The total number of industrial licences and letters of intent (as stated earlier) has gone up. In addition, the facility to set up industrial units without industrial licensing for units upto Rs. 1 crore of investment (as also expansion schemes involving upto Rs. 1 crore per unit with capital of less than Rs. 5 crores) subject to certain constraints of foreign exchange is expected to lead to the creation of additional capacity and thus lead to rapid growth of industrial production.

The pace of licensing of import of capital goods has also been speeded up as the figures below will show:

TABLE XV

Value of Import Licence

(Rs. crores)

1964—65	303.39
1965—66	170.22
1966—67	412.46
1967—68	164.67
1968—69	83.83
1969—70	73.20
1970—71	127.09

Further, licensing of import of industrial raw materials has been significantly stepped up. The total volume of import licensing has gone up by 27 per cent in 1969-70 as compared to 1968-69. During 1970-71, import licencing increased by a further 35.5 per cent. The policy on import of steel has been specially liberalized to meet the shortage.

In the small scale sector, the policy of licensing of imported raw materials has been particularly liberalized. Entitlement of non-ferrous metals, for example, was increased by 50 per cent across the board in 1970-71. Also small scale units have been allowed an increased entitlement by 25 per cent of import of all categories of mild steel. The

growth of the total volume of import licensing for the small scale sector is given in the table below:

TABLE XVI

Import Licences for Small Scale Sector, 1964-71

	(Rs. in crores)
1964—65	17.64
1965—66	4.40
1966—67	74.09
1967—68	49.77
1968—69	36.72
1969—70	65.57
1970—71	83.26

These figures are exclusive of release to the small scale sector through canalizing agencies like the State Trading Corporation, the Minerals and Metals Trading Corporation and Hindustan Steel.

Small Scale Industries: There was some development of modern small scale industries, especially in engineering, during the Second World War but, after the cessation of hostilities, the units could not adapt themselves to the changed needs. Some degree of revival took place during the First Plan period: manufacture of sewing machines, bicycles and storage batteries was taken up and capacity was expanded in certain other items like agricultural machinery, leather tanning, radio receivers, bifurcated rivets, furniture, small tools, sports goods, etc., in which the expansion of large industry was restricted partly as a measure of policy. Development was more rapid during the Second Plan, when many units came to produce articles requiring a high degree of technical skill like plastics and some chemicals. Production of radio amplifiers, transistor radios, radio components, tape recorders, simple optical lenses, etc., was taken up. As small scale industry took increasingly to import substitution, there was even a demand for foreign collaboration in such items as minor electrical apparatus, electronic instruments, water meters, engine valves, textile accessories, clock-work, toys, tungsten carbide dies and non-engineering items like glass fibre, adhesives, glass tubes, laminating processes, etc. Government approved phased common production programmes in some industries like refrigerators, water coolers, air conditioners, photo flash bulbs, clocks and watches, and scientific instruments.

The maximum growth of small scale industries has taken place largely over the last decade. They comprise enterprises with an investment of Rs. 7.5 lakhs in machinery and equipment. They use modern equipment and techniques of production and management. Not only have small scale industries grown in numbers, the products of many of them conform to standards and specifications prescribed by the Defence

Services, railways and several large scale industries. A number of small scale units supply parts and components to large industries engaged in the manufacture of machine tools, bicycles, automobiles, coach building and other railway equipments, and electronic and electrical appliances and machinery. Products of some of these industries are exported. Several new items, parts and components requiring high technology and precision are made in this sector thus minimizing their imports.

Small scale industries have been assigned a vital role in our development strategy for three main reasons which have assumed social and economic importance in recent years. Firstly, this sector can provide employment opportunities for surplus labour force at a relatively smaller capital cost. Secondly, small scale industries are useful and effective for mobilizing untapped scarce resources of capital and entrepreneurial skill. Thirdly, these industries are expected to ensure the diffusion of productive industrial activity in order to (a) accord concentration of industry leading to flow of population to metropolitan cities causing socio-economic and political maladies of concentration, (b) create employment opportunities in areas where large additions to labour force accrue year after year and foster balanced development of all parts of the country and (c) promote progressive rural economy through the establishment of economic and functional links between the rural or semi-urban areas and the cities.

In 1960-61, there were 36,109 small scale industrial establishments in the country (Table XVII). As the decade progressed they increased more than five times and in 1969-70 they stood at nearly two lakh units: machines valued at over Rs. 40 crores were supplied on hire-purchase terms in 1969-70 (Table XVIII). As at the end of March 1970, ten thousand parties were given hire-purchase facilities — indigenous machinery worth Rs. 16.6 crores and imported Rs. 23.6 crores. More than 19,000 small scale units have been listed for exclusive purchase by Government of 166 items made by the small scale sector. Between 1956 and 1959 the number of such reserved items was barely 16 (Table XIX). The value of contracts given to the small scale sector by the Directorate General of Supply and Disposal at the end of March 1970 was made Rs. 182 crores spread over fifteen years. In addition the railways purchases made for Rs. 16 crores.

As at the end of March 1970, the Small Scale Sector (both factory and non-factory) gave employment to 63 lakh people for a gross output valued at Rs. 3,670 crores and an investment of Rs. 450 crores.

By the end of March 1970, there were 389 industrial estates all over the country. In 1960-61 there were only 66. Of the 389 industrial estates 303 were functioning and they contained 5,413 work-sheds. Their output in the year 1969-70 was worth Rs. 100 crores and employed over 96 thousand people.

TABLE XVII

Registered Small Scale Units

Year	*No. of Units*
1961	36,109
1962	52,241
1963	74,857
1964	92,583
1965	1,06,883
1966	1,21,619
1967	1,36,273
1968	1,61,865
1969	1,78,210
1970	1,93,131
1971 (31.3.71)	2,14,004

TABLE XVIII

Hire-purchase Assistance State/Territory-wise as on *31. 3. 1970*

(Rs. crores)

1.	Southern Region	14.45	2.	Western Region	9.64
	Tamil Nadu	5.32		Maharashtra	6.54
	Andhra Pradesh	2.03		Gujarat	1.71
	Kerala	2.30		Madhya Pradesh	1.28
	Mysore	4.75		Goa	0.11
	Pondicherry	0.05			
3.	Eastern Region	5.92	4.	Northern Region	10.19
	West Bengal	4.73		Delhi	3.20
	Bihar	0.55		Uttar Pradesh	3.70
	Assam	0.39		Punjab	2.07
	Orissa	0.22		Jammu and Kashmir	0.18
	Manipur	0.02		Rajasthan	0.74
	Tripura	0.01		Haryana	0.20

Grand Total 1 + 2 + 3 + 4 : Rs. 40.20 crores.

TABLE XIX

Items for Exclusive Purchase by Government from Small Scale Sector

Year	*No. of Units*
1956—59	16
1959—61	27
1961—62	46
1962—63	63
1963—64	70
1964—66	72
1966—67	84
1967—68	110
1968—69	122
1969—70	146
1970—71	166

The spectacular progress of small scale industries is a tribute to the initiative and grit of the newly rising class of *entrepreneurs* from hitherto trading and agricultural interests and the systematic and positive efforts of Government to encourage them. Their growth has been greatly assisted by the availability of financial assistance from the National Small Industries Corporation, the State Bank of India, the fourteen nationalized banks, State Financial Corporations and State Governments.

The NSIC scheme for hire-purchase of machinery was introduced in 1956 and came into operation in 1957-58. Under the scheme NSIC supplies, plant and equipment against a small earnest money deposit, the balance being recovered in instalments spread over a period of 7 to 10 years on a lower rate of interest than the prevalent bank or market rate. The formalities of assessing the creditworthiness of the applicant and asking him to provide sureties are dispensed with.

Another important sphere of activity of NSIC is the training of artisans and skilled workers at its Prototype Production and Training Centres where they are provided with free hostel accommodation and are paid stipends for the duration of their training. More than 4,000 trainees have so far passed out of these training centres after rigorous in-plant training in several engineering trades.

A special scheme has been in force for over a year to encourage exports in the small scale sector. Manufacturing units exporting more than 10 per cent of their production are eligible for priority issue of licences and for preferred sources of supply for import of raw materials and components. Under this scheme, 447 units qualified for preferential treatment in the year 1970-71. They had produced goods worth Rs. 66.47 crores and the value of their exports was Rs. 22.25 crores during the previous year. Of this export total, as much as one quarter was contributed by 10 units. Twenty-nine units had exported their entire production during the year. These industries are tabulated below:

TABLE XX

Industry	*Number of Units*
Curry powder, pickles, pine-apple juice and jam	1
Woollen hosiery and knitwear	3
Readymade garments	3
Printed books, periodicals, journals, etc.	1
Drugs and pharmaceuticals, medicines etc.	1
Agarbatties and *dhoop*	4
Brass utensils, brass artware and sports cups	8
Agricultural machinery and implements	1
Car radios, aerials, amplifiers, etc.	1
Automobile parts and accessories	2
Surgical instruments and equipments	1
Plastic products, plastic bangles, imitation jewellery etc.	1
Sports goods	2

In the final analysis, 69 units out of the total 447 units exported over 80% of their production, 86 units between 50 and 80 per cent and the remaining 292 units betwen 10 and 50%.

Auxiliary Industries: The auxiliary programme has gained momentum in recent years as feeders for the larger units. They need sophisticated plant and machinery to meet the requirements of the units they serve. In view of this, the upper limit of investment for auxiliaries has been fixed at Rs. 10 lakhs for plant and machinery. In 1970-71 there were 10,000 such units supplying parts and components regularly to about 200 large industries. The total investment in these small auxiliary industries is estimated at Rs. 300 crores and the value of their products at Rs. 32 crores in 1970-71. There were about 600 auxiliaries feeding the automobile industry alone. About 980 types of end products required for 16 large industrial groups are covered by auxiliaries.

In addition, nearly 280 units were engaged in production for feeding 21 public sector undertakings and the value of their output was Rs. 7.35 crores. Fifty-one units were effectively functioning in one centre of Hindustan Machine Tools supplying 50 per cent of components. In terms of import substitution the output of auxiliary industries was valued at Rs. 1.32 crores. Auxiliaries have provided employment to about one hundred thousand persons. The centres of concentration of auxiliary units are in Bangalore, Bombay, Delhi, Ranchi and Madras and scattered in other parts of the country.

There are roughly 1,000 large scale units in the private sector and 60 established in the public sector which still remain to be tapped by auxiliary industries in the small scale sector.

Groups of Industries Supplied by Auxiliary Units

1. Industrial machinery.
2. Agricultural and earth-moving machinery.
3. Machine tools.
4. Industrial, scientific and mathematical instruments (mechanical)
5. Locomotives and rolling stock, ships and aircrafts.
6. Bicycles.
7. Boilers and steam generating plants.
8. Steam engines, turbine and internal combustion engines.
9. Automobiles.
10. Commercial office and house-hold equipment
11. Electrical machinery, equipment and appliances.
12. Tele-communication equipment.
13. Industrial instruments (electrical).
14. Radio and electronic equipment.
15. Air conditioners and cold storage equipment including refrigerators.
16. Minerals, oil and petroleum industry.

Industrial Co-operatives: Cottage and small industries in the co-operatives sector have been given an important place in the overall scheme of industrial development. They get various types of assistance by way of imported and scarce indigenous raw materials, finance for block and working capital and participation of State Governments in their share capital.

The number of co-operatives in the industrial sector in 1970 was estimated at 51,000 with a membership of 37 lakhs and a working capital of about Rs. 370 crores. One hundred and sixty-five were in the medium and large industrial sector — 68 textile mills, 84 sugar factories, 6 vegetable oil and *vanaspati* factories, 4 milk product institutions and 3 manufacturing other food articles.

Of the total, 47,970 were industrial co-operatives organized by artisans, craftsmen, workers, etc. These institutions either undertook production and sale activities or offered supply, sale and other services to their members. Membership of such societies totalled 31.86 lakhs and the number of employed were 8.10 lakhs. These societies had a working capital of Rs. 164.81 crores. During the year ended June 30, 1969, sales totalled Rs. 143.24 crores. Thirteen thousand three hundred and fourteen societies were working at a profit which amounted to Rs. 3.68 crores.

The National Federation of Industrial Co-operatives, registered in March 1966, helps in buying and selling raw materials, components, parts and equipments for the use of industrial co-operatives and marketing of products. The Federation had (1969) a barter deal with the U.S.S.R. for the import of 5,000 tonnes of Sunflower Seed Oil worth Rs. 1.13 crores. In return, woollen and nylon knitwears have been exported. Musical instruments are exported to U.K.

Khadi and Village Industries: Since the beginning of planned development in India, village industries have been given a central place in rural programmes. The First Plan says that the development of village industries should be as much a matter of State action, as the increase of agricultural production. One cannot be separated from the other. It argues that products of large scale industries have increasingly limited the market for several classes of rural artisans. Their occupations now give them only partial employment, so that they tend to join the ranks of agricultural workers. The Frst Plan estimated an expenditure roughly of Rs. 7.25 crores on selected village industry schemes which would give employment for over 16 lakh persons including, full-time and part-time workers and students. The Plan envisaged a Khadi and Village Industries Board which would take on these programmes in consultation with State Governments and organizations engaged in this field.

In drawing up the Second Plan, considerable thought was given to the idea of decentralized spinning in rural homes providing adequate quantities of quality yarn for handlooms which were otherwise depending on mill yarn. Also this would considerably increase the scope for rural employment. The Khadi and Village Industries Board launched a pilot scheme on the basis of the Ambar Charkha, a three unit spinning set consisting of a carding machine, a drawing machine and a four-spindle spinning wheel costing in all about Rs. 100. With this longer programme in view the Board drew up a tentative programme for the manufacture and introduction of 25 lakh multi-spindle *charkhas* over a period of five years offering prospects of part-time and full-time employment to about 50 lakh persons. The expectation that the Ambar Charkha might play a larger part in the future development of *khadi* was not entirely fulfilled for two reasons: work on the new *charkha* was new to the spinners who had been accustomed to the traditional wheel and in the initial stages, the Ambar Charkha in quality was not upto the mark. Meanwhile the *khadi* and Village Industries Board was replaced by the Commission created by an Act of Parliament in 1956.

The Third Plan programme to introduce 3 lakh Ambar Charkhas did not materialize and only 15,534 were introduced in the first two years of the Plan. There was no significant increase in the number in subsequent years. The reason was that the Commission was engaged in designing and developing an improved model of *charkha*.

The total production of all varieties of *khadi*, including woollen and silk, increased from 538 lakh square metres in 960-61 to 849 lakh square metres in 1965-66 but declined to 600 lakh square metres in 1968-69. In the following year, 1969-70, it went up again to 622 lakh square metres. Its value was Rs. 2,564 lakhs as against Rs. 2,338 lakhs the previous year. The *khadi* industry provides employment for about 11 lakh persons of which more than 9 lakhs are spinners.

The village industries employ 9 lakh persons including part-time workers. Production in 1969-70 was valued at Rs. 78 crores showing a slight fall of Rs. 3.50 crores of the value of production of the previous year. The sales in 1969-70 were, however, showed an edge over those of 1968-69.

The Khadi and Village Industries Commission has been spreading out its activities in the hill border areas and in places with large population belonging to the weaker sections of society. The main objective is to strengthen and stabilize their economy. The programme consists of popularization of improved equipment and implements in place of traditional ones, supply of essential consumer commodities through the development of *khadi* and village industries and organization of institutions/co-operatives of local people and artisans and training and

organizing markets for the surplus production after meeting local needs.

Pioneering work has been done in some vulnerable areas like the Rajasthan international border, Himalayan border areas of Pithorgarh, Uttar Kashi and Himachal Pradesh, and certain pockets in Kutch, Manipur and Tripura, N.E.F.A. and Nagaland.

As a result, a number of institutions consisting of local people and artisans has been set up; and they are progressively prepared to take up development work on a planned basis. Similarly, in the hill areas and tribal belts of Madhya Pradesh, Gujarat and Uttar Pradesh and the Andaman and Nicobar Islands, the results have been encouraging.

Handlooms and Powerlooms: The share of handlooms and powerlooms in total cloth output has increased considerably since 1948 and its contribution at present is half the entire production. Their total number in this decentralized sector was 1,409,068 in 1969 as against 1,323,618 in 1961. There is a heavy concentration of handlooms in Andhra Pradesh and Tamil Nadu.

Production in 1969, rose to 4,430 million metres from 2,942 million metres in 1961 and 1,300 million metres in 1951. (Table XXI) *Dhotis, sarees* and towelling cloth account for more than 50 per cent of handloom output. More than two-thirds of their demand for yarn is for counts above 20s.

TABLE XXI

Composition of Cloth Outputs

(Million Metres)

Year	*Total Cloth Output*	*Handlooms and Powerlooms*
1948	5,100	1,151
1951	5,051	1,300
1961	7,657	2,942
1969	8,613	4,430

The figures include output of cloth — both cotton and non-cotton. Non-cotton cloth includes man-made fabrics besides woollen, worsted and wearable fabrics.

Indian export of handloom goods during 1970-71 was over Rs. 25.62 crores. Non-traditional markets alone purchased goods of the value of more then Rs. 16 crores. Handloom products are exported to more than 100 countries.

Rural And Urban Household Industry: For the first time, an attempt was made in the Indian Census of 1961 to collect economic data on the basis of households in addition to the information collected about each individual citizen. In a predominantly agricultural country, most of the population is in the rural areas where much of the produce is consumed by the population. Information purely on the basis of individuals tends to go slightly out of focus, it was explained, unless such information was supplemented by data on the economic activities of the household as an entity.

Earlier, in 1958-59, the National Sample Survey, in one of the rounds, had collected some data on household industries. It had found that 135,000 households were engaged in unregistered manufacturing activity.

The data collected in the 1961 Census, based on 20 per cent sample revealed that there were 16,750,585 households in the country. Of these, 13,707,407 were rural households and the rest urban. Households engaged neither in cultivation nor in industry numbered 6,318,108 and more than half of them were rural. Rural households engaged in cultivation only were 8,554,821 and this formed an overwhelming majority of a total of 8,792,764. Similarly households engaged in industry only were 592,400 out of a total of 788,703. The rest were urban households. A total of 851,010 households were engaged both in cultivation and industry. Of this 831,010 were rural households and a bare 20,000 urban.

TABLE XXII

Workers Engaged in Household Industry

(All Industries)

	Households	*Family Workers*		*Hired Workers*
		Men	*Women*	
Rural	1,423,410	2,209,828	1,372,733	238.095
Urban	216.303	272,245	147,814	39,363
Total	1,639,713	2,482,073	1.520,547	277,458

Households, both rural and urban, were engaged in 367 industries classified into 20 major groups. These are: (1) field produce and plantation crops; (2) forestry and logging; (3) fishing; (4) livestock and hunting; (5) mining and quarrying; (6) food-stuffs; (7) beverages; (8) tobacco products; (9) textiles — cotton, jute, woollen, silk and mis-

TABLE XXIII

Number of Persons Engaged Only in Household Industries Classified by Major Groups

	Households	Households engaged according to number of persons working					
		1 Person	2 Persons	3—5 Persons	6—10 Persons	More than 10 Persons	Unspecified
All Industries Grand Total	788,703	384,160	236,054	147,472	15,782	1,702	3,533
Rural	592,400	288,149	182,275	108,089	9,965	933	2,986
Urban	196,303	96,011	53,776	39,383	5,817	769	547
I. Agriculture, livestock, forestry, fishing & hunting							
Total	83,763	44,798	23,414	13,743	1,220	93	495
Rural	74,489	39,886	20,839	12,144	1,093	70	457
Urban	9,274	4,912	2,575	1,599	127	23	38
II. Mining and quarrying Total	865	379	263	203	18	1	1
Rural	764	336	231	179	16	1	1
Urban	101	43	32	24	2	—	--
III. Manufacturing food-stuffs, textiles, wood and wooden products							
Total	704,075	338,983	212,377	133,526	14,544	1,608	3,037
Rural	517,147	247,927	161,208	95,766	8,856	862	2,528
Urban	186,928	91,056	51,169	37,760	5,688	746	509

cellaneous; (10) manufacture of wood and wooden products; (11) paper and paper products; (12) printing and publishing; (13) leather and leather goods; (14) rubber, petroleum and coal products; (15) chemicals and chemical products; (16) non-metallic mineral products other than petroleum and coal; (17) basic metals and their products except machinery and transport equipments; (18) machinery (all kinds other than transport) and electrical equipments; (19) transport equipments; (20) miscellaneous manufacturing industries.

IV. Growth of Corporate Sector

Joint Stock companies came into existence in 1845 when an act was passed to incorporate the Assam Company with an authorized capital of Rs. 50 lakhs. The Companies Act followed in 1850, but the principle of limited liability was introduced only in 1857. Banking and insurance companies received the privilege of limited liability three years later. The growth of the corporate sector was, however, very slow till the boom after the First World War. In 1900, there were only 1,340 companies with a paid-up capital of Rs. 34.70 crores (Table XXIV). Of these, 152 were cotton mills with a share capital of Rs. 11.67 crores, and 129 were tea plantations with a share capital of Rs. 3.25 crores (there were, besides, a number of sterling tea companies but data for these are not available readily in a comparable form). There were also 21 jute mill companies with a share capital of Rs. 2.68 crores.

By 1919, the total number of companies rose to 2,789 and their share capital crossed the Rs. 100 crores mark for the first time to reach the figure of Rs. 106.6 crores. The industry-wise distribution remained broadly unchanged, except for the growth of coal mines and rice and flour mills. Thereafter, growth was rapid (by contemporary standards) upto 1925; the number of companies in that year reached 5,204 and their share capital amounted to Rs. 275.5 crores, in spite of the winding up (liquidation) of 1,836 companies with a share capital of Rs. 39 crores during the period, mainly in 1922-25. In the ensuing slump that lasted through 1938, the number of companies increased consistently (except for a decline between 1937 and 1938) but their share capital remained sluggish. There were 10,657 companies in 1938, more than twice the number in 1925, but their share capital was Rs. 279 crores only.* This sluggishness notwithstanding there was some growth in banking and insurance, cotton, jute, coal and inland navigation; thanks to protection, the number of sugar companies increased from 20 in 1919 to 172

*Liquidations were a prominent feature from 1917-18 through 1930-31 during which period the paid-up capital of companies that went into liquidation exceeded in every year the paid-up capital of new companies registered.

in 1939 and their share capital expanded from Rs. 82 lakhs to Rs. 11.18 crores; interest came to be evinced in paper and rubber plantations also.

The corporate sector has not looked back since then. By 1947, there were 21,853 companies with a share capital of Rs. 479 crores which, on the eve of the First Five Year Plan in 1951, rose to 28,432 companies and Rs. 775 crores, respectively. At the end of March 1956, which marked the end of indifferent and decentralized administration of the Companies Act, the number of companies stood at 29,874 and their share capital aggregated Rs. 1,024 crores. Proliferation of bogus entities during the Second World War and unsettled conditions of the late forties led to considerable seepage of water into the corporate sector. Out of nearly 13,000 companies which 'ceased to work' (as defined by the Company Law Administration) between April 1956 and March 1962. more than one-half were struck off by Registrars of Companies for non-fulfilment of various statutory obligations. Between 1965 and 1970, 3,455 companies ceased to work. At the end of March 1970, there were 28,948 companies with a paid-up capital of Rs. 3,754.7 crores. While traditional industries like cotton, jute, sugar, etc., retain their importance, engineering and chemicals are assuming greater significance. Moreover, there is an increasing tendency towards diversification within the large companies.

Following British law and practice, companies in India are either public or private. The latter have a minimum of two shareholders and a maximum of fifty; their shares cannot be offered to the public nor are the shares freely transferable; under the Companies Act, 1956, are exempt from restrictions regarding appointment and remuneration of managerial personnel, etc., applicable to public companies but they must insert 'private' after their name. Public companies must have a minimum of seven shareholders; their shares can be offered to the public but there is no statutory obligation upon them to do so by prospectus or otherwise.

More than three-fourths of the companies registered in India are private. At the end of March 1970, the total number of non-Government companies was 28948 with a total paid-up capital of Rs. 3,754.7 crores. Of these 6172 were public companies whose paid-up capital was Rs. 1,658.8 crores. Private companies numbered 22,776 whose total paid-up capital was Rs. 2,095.9 crores (Table XXVI). Their relative importance in share capital is not equally impressive and would have been even less so but for the fortuitous registration of most Government companies as private companies. Curiously enough, the predominance of private companies is a post-1946 phenomenon; till 1946, the majority of companies were public, though most of these were closely owned. In fact, during the first two decades of the present

TABLE XXIV

Companies Registered and at Work in India since 1900

(Paid-up Capital in Rs. Crores)

As on 31st March	*Number of Companies*	*Paid-up Capital*
1900	1,340	34.7
1910	2,216	61.4
1920	3,668	123.2
1925	5,204	275.5
1930	6,919	286.3
1935	9,842	304.0
1939	11,114	290.4
1946	17,343	424.2
1950	27,558	723.9
1955	29,625	969.6
1957	29,357	1,077.6
1960	26,397	1,618.7
1964	26,457	2,537.5
1970	28,948	3,754.7

TABLE XXV

Number and Paid-up Capital of Companies in Important Industrial Groups

(As on 31st March, 1964)

	Industrial Groups	*No.*	*Paid-up Capital*
			(Rs. Cr.)
1.	Tea Plantations	575	34.6
2.	Sugar Factories and Refineries	193	50.0
3.	Cotton Spinning & Weaving	763	165.1
4.	Iron & Steel (Basic Mfr.)	573	538.1
5.	Transport & Equipment Mfr.	635	83.2
6.	Mfr. of Electrical Machinery Etc.	706	81.4
7.	Machinery other than Transport and Electric	1,115	167.9
8.	Basic Industrial Chemicals, Fertilizers, etc.	426	104.1
9.	Products of Petroleum and Coal	39	62.5
10.	Manufacture of Cement	40	46.4
11.	Paper and Paper Products manufacture	199	48.4
12.	Wholesale Trade	4,139	121.0
13.	Banking, loan and other financial institutions	2,132	107.9

TABLE XXVI

Public and Private Companies 1917-70

Paid up Capital in Rs. crores

As on 31st March	*Public Companies*		*Private Companies*	
	No.	*Paid-up capital*	*No.*	*Paid-up capital*
1917	2,306	85.0	207	5.8
1920	3,000	104.6	668	18.5
1939	6,859	213.2	4,255	77.2
1946	10,129	323.1	7,214	101.1
1951	12,568	566.5	15,964	208.9
1956	9,575	690.4	20,299	333.8
1960	7,188	840.5	19,709	778.2
1964	5,968	1,164.9	20,489	1,372.6
1970	6,172	1,658.8	22,776	2,095.9

century (data are availableonly from 1917 onwards) there were very few private companies. The preference for private companies that has been so much in evidence since 1946 is, perhaps, only partly attributable to the desire to avoid the greater statutory regulation of public companies; mainly, the private company appears to have become the favourite vehicle of trading and urban financial activity and nascent industrial enterprise.

The number and relative importance of Government companies have increased substantially since the beginning of planning. This category of companies was recognized for the first time in the Companies Act 1956, section 617 of which defined a Government company as one in which 51 per cent or more of the share capital is held by Government. Understood in this sense, there were 36 Government companies with a share capital of Rs. 26 crores in 1951 and 61 with a share capital of Rs. 66 crores at the end of March 1956. They accounted for about 3 per cent of the share capital of all companies in 1951 and a little more than 6 per cent in 1956. Their growth since then has been impressive. At the end of 1969-70, there were 282 government companies with a share capital of Rs. 1,790.6 crores (Table XXVII).

TABLE XXVII

Government Companies at Work 1951-70

As on 31st March	*Public Cos.*		*Private Cos.*		*Total*	
	No.	*Share capital*	*No.*	*Share capital*	*No.*	*Share capital*
		(Rs. Cr.)		(Rs. Cr.)		(Rs. Cr.)
1951	—	—	—	—	36	26
1956	—	—	—	--	61	66
1961	39	33	103	514	142	547
1970	81	130.2	201	1660.4	282	1790.6

Finally, to complete this introduction, reference may be made to foreign companies. These are companies registered outside India but with a place of business in India and should be clearly distinguished from foreign-controlled companies which are registered in India. The number of foreign companies at work increased from 579 in 1913 to 901 in 1933, declining to 819 in 1955, and further to 561 in March 1970. (Table XXVIII). The decline is attributable entirely to the weeding out of non-reporting branches of foreign companies. Most of these companies are engaged in tea plantation, insurance, trade, business, services and transport; 390 of them are of U.K. origin and 72 of U.S. origin.

TABLE XXVIII

Foreign Companies Working in India

Year	Number
1913	579
1923	720
1933	901
1939	870
1943	827
1947	834
1950	845
1955	819
1960	565
1963	583
1970	561

V. Industrial Management

Early History: The management of public industrial companies in India has, in most cases, been in the hands of managing agents since the beginning of industrialization. As in Malaya, Hong Kong, the former Treaty Ports of the pre-Communist China, and Indonesia, this institution was the product of gradual evaluation. The managing agency developed on the ruins of the agency house system (founded by ex-servants of the East India Company) which failed in 1833. It grew out of the enterprise of European individuals who came to Calcutta as representatives of trading companies. They found the country lacking in industrial leaders, since imports from Britain had crippled the master craftsmen and traders; money-lenders and big landowners had neither the inclination nor the experience to go into modern industry. The prospects of local processing and rudimentary manufacture for export were attractive because of the availability of raw materials and cheap labour. With the opening of the Suez Canal and laying of railways, the Indian market also appeared on the business horizon. Exploitation of the prospects required capital, contacts with suppliers of equipment and buyers of produce, and skilled labour; these the European representatives were well-qualified to supply or procure. Their mercantile experience and connections proved invaluable; the deficiency of technical expertise was made up by hiring it from Britain. The field open to each *entrepreneur* was wide; mistakes could be made without burning of fingers. *Entrepreneurs* moved from jute into coal, from tea into steamers, from these into some kind of engineering, to find a market for one in the other. The Industrial Commission of 1916-18 noted:

"A characteristic feature of organised industry and commerce in all the chief Indian centres is the presence of the large agency firms, which, except in the case of Bombay, are mainly European. In addition to a participating in the export and import trade, they finance

and manage industrial ventures all over the country and often have several branches in the large towns. The importance of these agency houses may be gauged from the fact that they control the majority of the cotton, jute and other mills, as well as of the tea gardens and the coal mines. This system originated and has still continued owing to the ability of these houses to furnish financial help to industries; it also owes its existence to some extent to the difficulty, in the case of companies under European control, of finding among the relatively small class of leading men of business available in India, directors, especially managing directors, who will remain in the country long enough to guarantee continuous supervision ... An agency firm as a rule comprises several partners, some of whom are in India, while the others attend to the firm's affairs in London or elsewhere. There is no doubt but that the system is in many ways well adapted to present conditions in India, and has a far greater list of successes to its credit than can be shown by ordinary company management under individual managing directors."

In Calcutta, the system, thus, combined ownership mainly by residents in Britain with management by partners and assistants in India. Although family influences predominated and the partnership was carried on from generation to generation, the more enterprising and ambitious of the junior assistants could look forward to becoming partners ultimately. Managing agents did the preliminary work of starting new concerns, promoted joint stock companies, employed their own funds or arranged for finance by acting as guarantors, and also managed the concerns. Besides these promotional, financing and managerial functions, they acted as agents for sales and purchases. The more important managing agencies also carried on export and import trade, insurance, banking and various kinds of agency business.

On the West Coast, the managing agents were, with some exceptions, Indian. The first written managing agency agreement was between the Bombay Spinning and Weaving Company and Cowasjee Nanabhoy Davar concluded on July 7, 1854; under the agreement he was appointed manager and broker for life, on a remuneration of 5 per cent of the sale proceeds of yarn. It can be safely presumed that the managing agency arrangements in Calcutta were imitated in Bombay by Indian merchants, who made fortunes from the opium trade with China and later, during the American Civil War, from the export of raw cotton to Lancashire; the latter alone was said to have earned Rs. 51 crores worth of gold and silver. Cowasjee Davar and Manockjee Petit in Bombay and Ranchhod Das Chotalal in Ahmedabad, and those who followed them raised most of the capital from their own resources but also secured substantial monetary and other assistance from agents of British machinery suppliers and friends. Though the mill companies were public, they had very

few shareholders. In Ahmedabad, where, unlike Bombay, most of the bigger managing agents were by tradition bankers, rather than traders, funds were raised in the form of deposits, too; the larger suppliers of capital got a share in the managing agency remuneration, contingent upon taking up a specified part of the share capital of the managed company—a rudimentary form of underwriting. In both these centres, capital was also raised from potential selling agents, etc., in consideration of future contracts. Commission to agents of machinery suppliers was often paid for in shares. The managers and technicians were generally British till the twenties. The privilege of sharing the fruits of managing agency was, however, normally restricted to members of the founding family with financiers as the only co-sharers, if any. From the thirties and forties onwards, some Indian managing agents in these centres and in Delhi, Kanpur, etc., began to give a share in the managing agency commission also to senior employees.

Shareholdings: The common practice with managing agents (leaving aside the fly-by-night variety found in all countries) was to promote and set up a concern and, when it was reasonably well established either to make it a public company and throw open its share capital to the public or otherwise dispose of their holdings. Care was taken at all times to retain permanent management rights: in most cases, adequate share capital was also retained in order to frustrate any move to oust them. What little evidence there is of shareholdings by managing agents in the first half of this century indicates that, whatever the position might have been in the 19th century, the well known managing agents held only a small part of the share capital of the companies under their management, and the proportion tended to decline even before 1939. But it was felt that the holdings of leading managing agents in the cotton and jute companies under their management were tending to shrink.

In the twenties, the holdings of managing agents in managed companies were small and in many cases the holdings belonged to the partners/directors of the managing agents. The Bombay Shareholders Association testified on the basis of shareholding data before the Tariff Board in 1932 that managing agent had ceased to be the principal shareholders in Bombay Cotton mills. A representative of Martin & Co. stated that his firm did not hold even 20 per cent of the companies under their managing agency because they prided themselves on the fact that they were successful agents. Managing agents were, therefore, not, in general, inclined to lock up their resources but took the earliest opportunity to free their funds for investment in other directions. The Tariff Board of 1932 observed:

"Where the managing agent represents a high standard of ability and sense of responsibility, it may make little difference to the company

to what extent the managing agent is interested in the share capital of the company. The better class of managing agent works partly for the remuneration fixed for him under his agreement but partly also out of regard for his reputation and out of a sense of pride in the tradition of management associated with his concern."

Control and Remuneration: Leaving aside their role as financiers (dealt with separately), it is clear that, as their direct contribution to share capital tended to decline, they sought security in permanent and comprehensive rights of management. These rights were assured through agreements in which managing agents acted in a dual capacity as managers and as shareholders. Until 1913, the law did not require an elected board of directors. When the law made elections mandatory, the outside directors depended for their continuance upon the loyalty they showed to the managing agents. Thus, although the managed companies were joint stock concerns with boards of directors, they were more akin to partnerships with outside shareholders as sleeping partners. As the holders of considerable shares (either in their own names or through partners and associated companies), it was in the managing agents' interest that the companies be managed efficiently and fair dividends be paid. But managing agents were paid in a number of other ways, too: commissions on profits, purchases, sales and insurance, remuneration to relatives and associates, etc.

Remuneration of Managing Agents: Managing agency by itself secured a certain value because of its rights and privileges apart from its ability to show profit in the concerns managed; the dividend earnings of agents were subordinate to their earnings in other forms. As the managers-cum-key owners were not chiefly interested in returns on investment, the general inducement to invest and public confidence in investment were adversely affected. Managing agency rights became a negotiable asset. In every boom period, the rights in many companies were transferred at fabulous prices and capitalized at inflated values; during slumps, transfers took place because the managing agents as distinct from the managed companies were in trouble and could no more raise finances on their guarantees. Even the Tatas handed over the majority control in the managing agency of their electric companies in the 1920s to an American syndicate without the prior sanction of the shareholders of the companies.

Originally, the common method of remuneration to managing agents was a *commission on output*. When *ring spindles replaced mules in* cotton mills, this sytem led to abuses. J. N. Tata was the first in 1886 to change over to a commission on profits. Till 1946, however, Ahmadabad cotton mills and Calcutta jute mills generally gave a com-

mission on output, in addition to an office allowance. The tea industry paid 2½ per cent on sales and a further 2½ per cent on profits. Coal and cement companies paid on the basis of profits while, in sugar, both the systems existed side by side. In 1916, Tata Iron and Steel adopted a sliding scale of remuneration, rising from 5 per cent to 9 per cent of profits according to various slabs of dividends declared. With the notable exception of Tata companies, profits were defined for this purpose as profits before interest and depreciation.

Many reputable managing agents surrendered their commission when the managed companies were in difficulties, and even gave up the interest due on debenture holdings, besides providing or securing large finances. In 1928, managing agents of 73 cotton mills in Bombay surrendered Rs. 1.91 lakhs of managing agency commission and Rs. 7.40 lakhs of interest on loans and debentures. From 1922 to 1927, Ahmadabad mill agents surrendered Rs. 13.31 lakhs of managing agency commission. The surrender in Bombay was not exactly munificent.

Mixed Blessings: That the managing agency system was a mixed blessing was being recognized even before 1920. The Industrial Commission was impressed by the high financial prestige of "the better-class agency firms and the readiness of the investing public to follow their lead" but was not altogether complacent about their performance.

> "....they (the better class agency firms) have not escaped criticism as being unduly conservative in their methods of business and as exhibiting undue reluctance to embark on new ventures. They have been charged with lack of enterprise and an unwillingness to follow up lines of development naturally proceeding from the expansion of operations in their own specialised industries. In other words they have been inclined to develop commerce rather than industries, and thus been at times less helpful than might have been the case. in clearing the way for continuous industrial progress."

The Central Banking Enquiry Committee 1931. had the benefit of considerable evidence on the working of the system during the twenties. especially in the western region. Appraisal of this evidence induced the Committee to recommend lesser dependence on the managing agency system for industrial development:

> "Although the Managing Agency system is reported to have done a great deal for the industrial development of Bombay, it is admitted that it is not by any means a perfect arrangement but has many serious drawbacks. There have been cases where the Managing Agents have, besides managing their own mills, traded and speculated and the resulting weakness in their position has reacted on the financial position of the mills themselves and led to banks withdrawing their cash credits even when the mills were intrinsically sound, merely because the Managing Agents had become weak. Further, although

it is true that in times of crisis such as Bombay has been going through, Managing Agents have incurred extensive losses as a direct result of financing the mills under their control, there have been a few cases in which these Agents have turned their loans to the mills into debentures, with the result that the concerns have passed into their hands and the shareholders have lost all their capital .. This system works well when everything goes on smoothly and when the industries are prosperous. When conditions alter and the industry or the particular concern comes up against bad times and the Managing Agents find themselves compelled to find more money to support the industry, it is found that they are not able in all cases to cope with the requirements."

"We suggest, therefore, that attempts should be made to make industrial enterprise in India less dependent on this system for future development. The establishment of direct financial relations between industrial companies and commercial banks is desirable.. "

With the passage of time more dissatisfaction was expressed with the working of the system in all its three main aspects. The well-known economist, P. S. Lokanathan said:

"There have been cases of waste .. ill conceived and fraudulent promotion. They (the managing agents) have been unwilling to pioneer and risk in new enterprises, where the profits have been neither large nor certain. However, successful the managing agency system of promotion might have been in the past, it cannot be concluded that it is so at present, or will continue to be so in the future.

"Since most Indian concerns have been under-capitalised, with share capital barely sufficient for block expenditure, the balance has to be raised from various short term or undependable or expensive sources. With debentures and preference capital unpopular, funds had to be raised by or through managing agents which had the result of further strengthening the managing agency system. Had the share and permanent capital raised at the start been sufficient to cover the needs of working expenses, there would not have been the same need for the continuance of an institution like the managing agent to finance industrial concerns.

"*While its (the system's) power for doing injury may be great, its capacity to do good is limited.* So far as the Indian section of the managing agency system is concerned, its continuance can be explained and justified only because of the concentration of ability, experience and capital in the hands of a few persons who have done great service to industrial development. If it became possible to persuade them to do for industry in an altered status what they have been doing as members of agency firms, the result would perhaps be wholly good. *There*

are no benefits which would be lost by such a change, for those benefits are not the result of the system but of the ability and resources of the persons who run the system".

Companies Amendment Act: Statutory restrictions on the power of managing agents were imposed for the first time in 1936. The duration of the appointment of a managing agent in public companies was limited to 20 years at a time, but there was no restriction on reappointments long before the expiry of the initial appointment. Managing agents could be removed if they were convicted of a non-bailable offence punishable under the Penal Code in relation to the affairs of the company. They could transfer their office only with the approval of the company in a general meeting. Powers of management were vested in the board of directors but subject to the articles of association of the company, which proved a gaping loophole. In 1938, insurance companies were debarred from having managing agents. Banking companies were similarly excluded in 1949.

Multiple Directorships: One of the minor reasons for the existence and continuance of the (British) managing agency houses was the difficulty of finding a sufficient number of Europeans to constitute boards of directors for industrial companies. Till 1913, and even for some years thereafter, the managing agents were the sole directors; later, the managing agents found a few friends generally solicitors and business associates, later Indian aristocrats and brokers, to serve as directors to conform with legal requirements. In 1931, out of 52 jute mills for which information was available, two had no directors (being incorporated before 1913) and the remaining 50 mills had 92 directors between them. Seventy-two coal companies had 80 directors between them, with four having none. In Bombay, around the same time, directorial talent was even more scarce: one person, for instance, was a director of 65 industrial concerns, another of 42, a third of 34, two others of 29 each, and another of 26.

The Companies Act 1956 limited the number of directorships held by an individual to 20 excluding those held in non-profit associations and those private companies which were neither holding companies nor subsidiaries of public companies. A study of the directors of 117 companies with a paid-up share capital of Rs. 50 lakhs and above registered in the western region in 1956-57 showed that these companies had 917 directorships held by 546 persons who, on an all-India basis, held 4,174 directorships in 1,905 companies, giving an average of about 8 directorships per person. Of these 546 directors, 113 held one directorship each, 294 had between 2 to 10 directorships, 95 had 11 to 20, and 44 had 21 or more; the last mentioned had 1,099 directorships between themselves.

The occupations of directors were defined rather vaguely in the relevant documents. The predominant majority, 441 out of 546, declared business as their occupation, and 33 were accountants or lawyers. Only 23 were specialists or technicians, and 49 were executives. Most of the directors were, in other words, businessmen-at-large.

Information regarding the age of directors was available for 505 out of 546. Of these, 36 were upto 30 years old, 142 were between 31 and 45, 172 were 46 to 55, and 92 between 56 and 65. The remaining 63 were above 65 and their re-appointment in public companies required a special resolution by three-fourths majority of the shareholders.

Of the 119 companies, 43 had both Indian and foreign directors. The distribution of directors by nationality in these companies was as follows:

TABLE XXIX

Distribution of Directors by Nationality in 1957

	No. of Companies	*No. of Indian directors*	*No. of Foreign directors*	*Ratio of Indian to Foreign*
Cos. with mainly foreign directors	10	10	60	1:6
Cos. with equal number of Indian & foreign directors	4	15	15	1:1
Cos. with mainly Indian directors	29	201	58	3:1
Total	43	226	133	2:1

Companies Act 1956: A large number of flagrant abuses in the promotion, management and financing of companies came to light in the late forties and early fifties. The abuses included cornering of shares of some leading companies listed at stock exchanges with a view to dislodging their managements, fraudulent promotions, trafficking in managing agency rights, large scale inter-company loans and investments to drain away the funds of widely owned prosperous companies into enterprises closely owned by controlling interests, widespread use of dummy shareholders and directors, oppression of minority shareholders and frauds upon creditors and tax authorities. The Company Law (Bhabha) Committee was appointed in 1951 to draft a new and consolidated Company Law. The Companies Act 1956 was based largely upon the recommendations of the Bhabha Committee. A department was set up within the Central Government to administer the Companies Act which had been administered till then by part-time officials in States. The Act required public companies and their subsidiaries to obtain prior Government approval of the appointment and remuneration of managerial personnel and their relatives and associates, inter-company investments, changes in the constitution of the managerial firms, etc.

Government was given the power to abolish the system in notified industries or businesses and Government companies were not to appoint managing agents after August 1960. Four categories of managerial personnel were recognized and defined for the first time: managing agents, secretaries and treasurers, managing director and manager*. All the four categories are specifically subject to the superintendence, control and direction of directors. The first two can be companies, firms or individuals but the latter two have to be individuals; all have to be appointed by the company in general meeting or hold office by virtue of the company's memorandum and articles. A director having any powers of management is deemed a managing director. The maximum remuneration to managing agents is fixed at 10 per cent of profits after depreciation. The maximum for secretaries and treasurers is $7\frac{1}{2}$ per cent and for managing directors and managers 5 per cent. Managerial personnel (and their partners or members if any) are not permitted to hold any other office of profit under the company. The period of appointment is 5 years at a time of managing directors, ordinarily 5 years but upto a maximum of 10 years for managing agents. No company can have more than one category of managerial personnel.

The Act has tightened up the conditions of issue of prospectus, required greater disclosure of accounts and interests of managerial personnel (which term does not include other officers of the company), abolished the issue or continuance of shares with disproportionate voting power, and restrained fraudulent persons from managing companies. No person can be a director of more than twenty public companies; managing agents (including managing agents under the same control) can manage not more than 10 companies but there is no restriction on the employment of the previous managing agents as secretaries and treasurers who can manage any number of companies; managing directors and managers can manage not more than two companies. Important decisions require shareholders' approval through special resolutions, which have to be passed by three-fourths majority.

Amendments between 1960 and 1965 have tightened up or introduced provisions relating to inter-company investments, private companies in which 25 per cent or more of share capital is held by public companies, audit and cost audit, powers of investigation by Government, appointment of sole selling agents, and preventing undesirable persons from exercising their voting power as shareholders. A Public Trustee has been appointed to take over the voting power of large trusts and a special tribunal has been vested with powers to remove managerial personnel and officers for misconduct. Government has the power to nominate

*The distinction between a statutory manager and other persons holding that designation or rank is that the former has powers of management as defined under the Companies Act and is or can be remunerated on the basis of a commission on profits.

two directors to protect minority interests and/or in the public interest. The amendments proposed in 1965 will remove many of the procedural rigidities which had been encountered in the administration of the Act.

Between 1956 and 1962, the Central Government, in consultation with the Company Law Advisory Commission, evolved certain principles and criteria for granting approval to the appointment of managing agents, managing directors, etc. These are broadly as follows:

1. The term of office of managing agents is ordinarily ten years for initial appointment and 5 years for re-appointment; for managing directors the term is five years or less.
2. The remuneration to the managing agents is generally fixed on the following scale:

   10 per cent on the first Rs. 10 lakhs of profit
   9 per cent on the next Rs. 10 lakhs
   8 per cent on the next Rs. 10 lakhs
   7 per cent on the next Rs. 10 lakhs
   6 per cent on the next Rs. 10 lakhs
   5½ per cent on the next Rs. 25 lakhs
   5 per cent on the next Rs. 25 lakhs
   4 per cent on any sum over Rs. 1 crore.

   Where, in exceptional cases, a fixed rate of commission is laid down, a ceiling on the amount of remuneration in any single year is prescribed. The minimum remuneration in the event of absence or inadequacy of profits ranges from Rs. 7,500 per year for a company with total long-term capital of Rs. 5 lakhs or less to Rs. 50,000 for a company with total long-term capital of over Rs. 150 lakhs. In private companies, the maximum remuneration permitted is 20 per cent of profits. Remuneration in other forms paid to directors or members or partners (as the case may be) of managing agents is to be charged against their commission. The maximum guarantee commission payable to managing agents is 1/10 of their total remuneration provided that, inclusive of it, the total commission paid to managing agents does not exceed 10 per cent of profits.

   Exceptions to the above are made in favour of heavy and high priority industries which have long gestation periods.
3. Approval of remuneration is related to the financial resources of the company, dividend record, turnover, size of unit, nature of business, extent to responsibility delegated, the number of managing directors proposed (total remuneration, if this is more than one, is subject to a maximum of 10 per cent of profits), and the nationality and previous experience of the personnel. The minimum remuneration limit of Rs. 50,000 is relaxed more frequently than for managing agents. The maximum remuneration is generally Rs. 120,000 per year but higher amounts are permitted to foreigners and others in exceptional cases.

A study carried out by the Company Law Administration in 1962-63 revealed that the nature of services rendered by managing agents to companies managed by them varied very widely. While some managing agents provided guidance on policy matters and the benefit of common expert services to their managed companies by employing wholetime paid directors and senior technical personnel, others gave only the benefit of their personnel advice and guidance to the managed companies. In some cases the cost of the common expert services was borne by the managing agents, while in others the entire cost of the services was distributed equitably over companies benefiting from them. The study also disclosed that it was difficult to find any reasonable common measure of services rendered by all or most of the managing agency houses in India. The Department also felt that is was not easy to distinguish between purely managerial and executive services. In the light of the results of the study, the Department came to the conclusion that, by and large, an illustrative list of services which could ordinarily be regarded as falling within the scope of the direct responsibility of the managing agents would include:

(a) overall supervision and control of the various operations subject to the general policy laid down by the Board of the managed company.
(b) co-ordination and integration of the departmental or divisional activities,
(c) dissemination of useful information.
(d) advice and guidance regarding sale of the company's products,
(e) undertaking of research,
(f) purchase of raw materials, import of capital goods and replacement of personnel, and
(g) planning and development, etc.

Apart from the services enumerated above, the managing agents are also expected to render promotional and financial services and to maintain a central organization for providing legal, accounting, taxation, technical, secretarial and other such administrative and routine services. The expenditure incurred by them for rendering non-managerial services can be reimbursed to the extent permissible under the law.

In January 1965, the Government, as required by Section 324 of the Companies Act 1956, appointed a committee of five senior officials to enquire into and report on the continuance of the managing agency system in five established industries, cement, cotton, paper, sugar and jute, and in any other industry or business as may be deemed fit

In the meantime, Government had been exercising its administrative discretion to weed out managing agents in several cases. Between April 1, 1964 and February 28, 1965, Government renewed the appointment of managing agents in 33 companies and refused permission to 40.

Different Forms of Management: Statistical data on the significance of the managing agency system have been available since the mid-fifties. In 1954-55, there were 3,944 managing agents, of which 2,522 were unincorporated firms, 1,238 private companies and 184 public companies. These managing agents managed in all 5,055 companies, out of the total of 28,568 companies (excluding banking, insurance and Government companies) in that year. The 5,055 managed companies accounted for 54 per cent of the total share capital of 28,568 companies. Out of 3,944 managing agents, 3,526 managed only one company each and 250 managed two companies each. About 95 per cent of the managing agents thus managed two companies or less. Only 17 managing agents managed 10 or more companies each.

In 1962-63, the number of managing agents came down to 1,044, of which 548 were unincorporated firms, 402 private companies and 94 public companies. The 1,044 managing agents managed 1,440 companies, out of a total of 24,598 companies (excluding banking, insurance and Government companies) in that year. Out of 1,044 managing agents in 1962-63, 899 managed one company each and 67 two each. About 93 per cent of the managing agents thus managed two companies or less. Only 7 managing agents managed 10 companies each, which excludes others which they managed as secretaries and treasurers.

In 1954-55, the system was of predominant importance in plantations, coal, grains and pulses, vegetable oil, sugar, textiles, iron and steel, transport equipment, cement, clay and glass, paper, power and transport. Its importance was relatively nominal in services and in two industries, tobacco and rubber, which were mainly under the control of international combines (Imperial Tobacco and Dunlop Rubber). By 1960-61, when all old managing agency agreements expired, the importance of the system in the aggregate was greatly reduced by the formation of Government companies, transmutation of erstwhile managing agents into secretaries and treasurers, greater frequency of subsidiaries, and flotation of new companies with other forms of management. In that year, managing agents continued nevertheless to be of predominant importance in plantations (in tea, subsidiaries and director managed companies became more significant), vegetable oil and dairy products, sugar, textiles, cement, power and basic iron and steel.

Secretaries and Treasurers: The institution of secretaries and treasurers was recognized for the first time in the Companies Act 1956. There was no reference to it in the report of the Bhabha Committee. The intention of the then Finance Minister, Shri C. D. Deshmukh, in encouraging the adoption of this system was, among other things, to smoothen the transition from managing agency to other forms of management and to enable those managing agents who managed more than 10

TABLE XXX

Companies Managed by Managing Agents—Industry-wise

(Paid-up capital in Rs. crores)

	1954-55					1960-61				
	Total No. of Companies	*Total Paid-up Capital*	*No. of Cos. managed by Mg. Agents*	*Paid up Capital*	*(4) as % of (2)*	*Total No. of Companies*	*Total Paid-up Capital*	*No. of Cos. managed by Mg. Agents*	*Paid up Capital*	*(9) as % of (7)*
	1	2	3	4	5	6	7	8	9	10
Industry										
1. Agriculture (excl. plantations)	854	4.43	190	1.29	29.1	290	2.49	7	0.23	9.2
2. Tea plantations	591	27.86	266	16.09	57.7	583	32.30	130	12.34	38.2
3. Other plantations	234	7.90	75	4.09	51.8	129	8.14	39	4.27	52.5
4. Coal mining	495	22.73	204	18.31	80.6	436	93.42	62	9.93	10.6
5. Other mining	421	14.55	90	5.86	40.3	338	14.95	16	5.21	34.8
6. Grains and pulses	263	5.11	52	3.04	59.4	230	6.09	15	1.21	19.9
7. Vegetable oil and dairy products	436	15.02	139	7.83	52.2	361	13.19	24	11.31	85.7
8. Sugar	216	30.23	108	22.84	75.5	203	44.08	62	28.21	64.0
9. Tobacco	68	19.24	12	1.77	9.2	58	19.73	2	1.41	7.1
10. Textiles	1,678	184.52	724	147.00	79.7	1,012	212.36	313	122.67	57.8
11. Beverages	328	9.01	84	2.85	31.6	128	4.79	7	0.79	16.5
12. Leather	178	3.61	45	1.12	32.0	148	3.96	11	9.87	22.0
13. Basic ferrous metal	318	34.22	85	29.97	87.6	505	379.15	23	57.91	15.3
14. Transport equipment	435	35.60	81	18.77	54.5	423	49.77	22	21.09	42.4
15. Electrical engineering	400	18.18	93	6.30	34.6	61	2.25	4	1.03	45.8
16. Machinery and workshops	646	26.67	148	12.50	46.9	804	60.9	54	14.25	23.7
17. Metal products	507	16.25	91	5.71	35.1	585	31.20	30	6.25	20.0
18. Chemicals and pharma	1,858	70.44	495	21.49	35.6	1,145	99.22	62	16.27	16.4
19. Perfumes and toilet	—	—	—	—	—	76	0.74	4	0.29	39.2

TABLE XXX (*Contd.*)

Companies Managed by Managing Agents—Industry-wise

(Paid-up capital in Rs. crores)

	1954-55					1960-61				
	Total No. of Companies	*Total Paid-up Capital*	*No. of Cos. managed by Mg. Agents*	*Paid up Capital*	*(4) as % of (2)*	*Total No. of Companies*	*Total Paid-up Capital*	*No. of Cos. managed by Mg. Agents*	*Paid up Capital*	*(9) as % of (7)*
	1	2	3	4	5	6	7	8	9	10
20. Paint and varnish	—	—	—	—	—	137	3.65	5	0.62	17.0
21. Matches	—	—	—	—	—	31	3.38	3	0.33	9.8
22. Cement	30	23.98	13	21.23	88.6	33	41.52	12	34.01	81.9
23. Clay and glass	440	12.38	126	7.40	59.8	400	13.30	30	4.60	34.9
24. Rubber	90	4.37	22	1.07	24.4	113	10.48	10	3.56	34.0
25. Paper and stationery	201	15.98	60	30.53	79.6	247	33.99	30	15.89	46.7
26. Power	354	34.48	209	30.53	88.6	257	39.19	85	33.59	85.7
27. Other manufacturing	2,174	19.35	368	4.51	23.3	1,478	46.02	35	2.14	4.7
28. Transport	1,550	42.15	120	28.27	67.1	1,464	52.90	30	8.43	15.9
29. Commerce, finance, storage and real estates	13,564	291.94	799	51.32	17.6	8,347	238.25	87	6.86	2.9
30. Other services	2,457	18.79	443	5.75	30.6	1,142	14.16	20	1.76	12.4
Total:	29,625	970.82	5,055	465.44	47.9	21,194	1,574.76	1,234	420.37	26.7

Sources: 1954-55: Nigam: *Managing Agencies in India* (First Round), 1957
1960-61: *Company News and Notes*, December 16, 1964.

companies to retain the management of the excess number. Under the Act, secretaries and treasurers had practically the same powers as managing agents, except that they had no right to nominate directors and their maximum remuneration was 7½ per cent of profits.

Before the expiry of all old managing agency agreements on the notified date, namely, August 15, 1960, there were only 9 companies with a paid up capital of Rs. 1.6 crores which were managed by secretaries and treasurers. As on August 16, 1960, 179 companies were managed by 45 secretaries and treasurers.

Over-all Pattern: Since 1956, the number of new companies proposing the appointment of managing agents declined steeply. Between April 1956 and March 1963, 9,150 new companies were formed. Of these, 134 companies had managing agents, 15 had managers, 18 secretaries and treasurers, and 2,681 managing directors; the remaining 6,302 were managed by boards of directors without any statutory managerial personnel.

In 1964, nevertheless, the relative importance of the managing agency system in terms of the share capital of public non-Government companies remained practically unassailed. More than one-half of the share capital of non-Government public companies was in companies managed by managing agents and their close variant, secretaries and treasurers. If banks, insurance and other service companies, and subsidiaries of international combines, which by tradition do not or under the statute cannot have managing agents are excluded, the proportion would rise from one-half to about three-fourths or more. In spite of the decline in its popularity, *the managing agency system is far from dead or dying.* Managing directors and their variant, managers, are comparatively insignificant as a form of management.

It should be emphasized, at the same time, that remuneration to managing agents has been tending to decline. It was 13.4 per cent of profits before tax (which is slightly different from the definition of profit and calculating the remuneration of managerial personnel in the Companies Act) in the aggregate Reserve Bank sample of public companies (including those not managed by managing agents) in 1950 and 4.9 per cent in 1962-63 (Table XXXI). The decline has taken place mostly in large-sized companies, *i.e.*, those having a paid-up capital of Rs. 50 lakhs and above (Table XXXII). Separate data for companies actually managed by managing agents are available only for 1955-59. The number of companies so managed declined during this period and remuneration as percentage of profits came down from 14.3 per cent in 1955 to 9.1 per cent in 1959. (Table XXXIII). Shrinkage in remuneration was most obvious in traditionally managing agency managed industries like tea, coal, sugar and textiles.

Comparable data on remuneration to managing directors are not available. A sample study of 125 companies having this form of management in 1962 found (rather inconclusively since the sample was heterogenous and included Government and managing agency companies) that this system appeared somewhat expensive at lower levels of profits but quite economical at higher levels of profits (Table XXXIV).

TABLE XXXI

Remuneration to Managing Agents 1950-63

	No. of Companies (1)	*Profits** *(Rs. Cr.)* (2)	*Remuneration to Mg. Agents* (Rs. Cr.) (3)	(3) *as % of* (2) (4)
1950	751	73.26	9.81	13.4
1951	751	96.93	12.42	12.8
1952	751	66.63	10.41	15.9
1953	751	76.05	10.36	13.6
1954	751	89.40	11.16	12.5
Total**		401.27	54.16	13.5
1955	749	98.60	14.13	14.3
	(30)	(2.36)	(57)	(24.2)
1956	736	102.17	11.49	11.2
	(27)	(3.35)	(.36)	(12.2)
1957	690	72.04	8.29	11.5
	(24)	(1.43)	(13)	(9.1)
1958	665	88.90	8.77	9.9
	(25)	(1.43)	(13)	(9.1)
1959	630	117.41	10.66	9.1
	(49)	(4.55)	(33)	(7 3)
Total***		479.12	53.34	11.1
		(13.12)	(1.52)	(11.6)
1960—61	1,333	228.12	13.03	5.7
1961—62	1,333	243.88	12.53	5.1
1962—63	1,333	267.40	13.20	4.9
Total**		739.40	38.76	5.2

*Before managing agents' remuneration and taxation.

**Figures for 1950-54 and 1960-62 relate to all companies in the Reserve Bank sample, including those not managed by managing agents.

***Figures for 1955-59 relate exclusively to companies managed by managing agents. Figures in parentheses are for companies managed by secretaries and treasurers. *These data are not comparable with earlier and subsequent data.*

TABLE XXXII

Remuneration to Managing Agents by Size of Companies—1959-1963
(As percentage of profits before tax and remuneration)

Paid-up capital (Rs. lakhs)	1959 (1001)	1960 (1333)	1961-62 (1333)	1962-63 (1333)
5— 10	7.4	7.5	7.5	7.5
10— 25	8.2	7.2	7.4	7.7
25— 50	7.0	7.7	6.8	6.5
50—100	8.3	6.9	6.5	6.1
Above 100	5.2	4.3	3.8	3.7
Total:	6.4	5.7	5.1	4.9

Figures in parentheses give the number of companies.

TABLE XXXIII

Remuneration to Managing Agents by Industry—1955 & 1959

Industry	1955		1959	
	No. of Companies	*% of Profits*	*No. of Companies*	*% of Profits*
1. Tea plantations	124	17.0	109	8.9
	(11)	(15.5)	(4)	(8.3)
2. Coal mining	46	20.2	36	11.4
			(5)	(10.3)
3. Sugar	61	14.6	47	10.2
	(1)	(4.7)	(4)	(29.2)
4. Cotton textiles	174	19.4	149	12.9
	(13)	(25.6)	(6)	(8.3)
5. Jute textiles	44	51.3	33	9.7
			(5)	(8.3)
6. Iron and steel	2	3.6	2	2.4
7. Transport equipment	8	11.7	5	10.5
			(1)	(—)
8. Electrical engg.	13	13.3	12	10.9
9. Other machinery	36	15.0	34	10.9
	(3)	(6.1)	(1)	(8.5)
10. Aluminium	2	9.7	2	10.2
11. Basic chemicals	8	12.3	7	11.5
	(1)	(—)	(1)	(—)
12. Pharmaceuticals	8	23.8	5	10.5
13. Matches	1	16.0	1	9.6
14. Other chemicals	12	12.8	11	9.8
			(1)	(—)
15. Cement	9	10.9	9	10.6
16. Pottery	10	17.7	2	10.5
17. Rubber	2	13.9	7	15.0
18. Paper	13	10.8	12	9.6
			(1)	(7.1)
19. Construction	4	13.6	4	9.6
20. Power	20	11.8	14	9.4
	(1)	(23.9)	(4)	(8.4)
21. Trading	10	14.1	6	10.3
22. Shipping	9	26.8	8	18.6
23. Hotels and restaurants	3	13.0	2	8.3
			(1)	(11.5)
Total (incl. others)	749	14.3	630	9.1
	(30)	(24.2)	(49)	(7.3)

Note: Data relate to only those companies, which were actually managed by managing agents. Profits are taken as before managing agency commission and taxation. Figures in brackets relate to secretaries and treasurers.

TABLE XXXIV

Remuneration to Managing Directors by Size of Net Profits 1962

Net Profits (Rs. lakhs)	*No. of Companies (125)*	*Average percentage remuneration*
Upto 10	77	11.8
10 — 50	31	5.1
50 — 100	10	5.1
100 & above	7	1.9

Appraisal of Managing Agency System: The significance of the managing agency system lies in its predominance in the management of large public, mainly industrial companies, but it is not the only form of group management. In a study of the ownership and control of more than 1,000 companies in which twenty selected business groups had an interest of one kind or other in 1958, it was found that only 372 were managed by managing agents; the remaining had other forms of management. The findings of the study were:

(a) Almost every well-known business group had a large number of managing agencies, most of which managed only one company each, while a few managed a very large number.

(b) Barring a few, which had other business besides managing agency, nearly all managing agencies had very little resources. They provided only a small fraction (less than 3 per cent) of the total share capital of the companies under their management; most of the controlling investments in managed companies were held by other companies in the group.

(c) A large part of the share capital of managing agency companies was owned by other companies. In fact, many leading managing agency companies were subsidiaries or joint subsidiaries of other companies. This indicated that they were merely the management departments of the groups concerned, and did not constitute the fountain-heads of control.

(d) A fairly large number of managing agencies were under the joint control of more than one controlling interest.

The principal advantages claimed for this system, as distinguished from other methods of managing companies under the same control, are that

(i) it provides firm and stable control over management; (ii) it secures the economies of large-scale operations, *e.g.*, in marketing, finance and management to companies under the same management; and (iii) it provides a flexible system of remuneration to top management.

Managing agency agreements did not appear to be generally necessary for the purpose of exercising voting control over the management of

public companies. The total controlling blocks in the public industrial companies of most groups were sufficiently large to enable the controlling interests to control the management of these companies even without the additional power of control conferred by managing agency agreements.

The firm and stable control which the managing agency system is supposed to provide means the perpetuation of family control. The system confers a birthright upon the managing agency family not merely to control the management of companies in the group but also to participate actively in and to direct their routine management. The technical and managerial deficiencies of hereditary management have been made up to some extent, in recent years, by the employment of professional technicians and managers, but the appointment of family members at levels superior to these professionals tends to weaken efficiency and leads to an overlapping of hierarchy in the top management of the managed companies.

There is often confusion within many managing agencies, too. for all the partners (if the managing agency is a joint venture) as well as the active family members have the right to intervene directly in the day-to-day affairs of the managed companies.

The question of the accrual of economies of management to companies under the same management can arise only in the case of those managing agents which manage a large number of companies. Most managing agents manage only one or two companies each. In their case, the question of economies of management does not arise at all.

The few managing agents who manage a large number of companies cannot claim special expertise in each of the various industries in which they have a managerial interest. They are not under an obligation to provide the best managerial and technical expertise at their own cost. The cost of the expertise, when it is obtained, is almost invariably charged to the managed companies, not to the managing agents.

The rate of commission on the profits of managed companies which is charged by the managing agents is independent of the number of companies managed by a single managing agent. If managing agent A, for instance, manages 10 companies, the rate of commission paid by each of these 10 companies is not any lower because the same managing agent manages 9 other companies too. The economies of management, if any, therefore, accrue to the managing agent, not the managed companies.

As members of a group, the managed companies do share and receive many common services and facilities. These depend upon membership of the group, not upon a particular system of management. So long as companies A and B, for example, belong to the same group, both are entitled to share the group facilities, whether one or both are managed by managing agents or have some other form of management.

The managing agency system is superfluous in most business groups from the point of view of finance and marketing as well. The financing and marketing role of managing agents is now generally undertaken by their associates within the group and these associates are remunerated separately for performing that role.

The managing agents are remunerated on the basis of a commission on the profits of the managed companies as laid down under the Companies Act and various official decisions. This system of remuneration does appear flexible as compared with the payment of fixed amounts to top management, but the flexibility is superficial. Most, if not all, of the expertise obtained for the managed companies is generally debited to them, not to the managing agents. To the extent a commission does save on large fixed salaries to top management, it tends to be offset by the fact that the management secured in return for the commission is only part-time. The managing agents as a company and their members as individuals are free to have other occupations, and any number of other management jobs in various capacities, even if these involve a conflict of interest. Besides, in a protected market, the flexibility of the remuneration tends to be one way and that is upwards.

The conclusion, therefore, is that the managing agency system is an expensive, irrational and part-time system of management. Its abolition is necessary in order to rationalize the management of public industrial companies. The removal of this system will not make any difference to the control and management of companies by groups. It will alter only the form, status, and system of remuneration of top management. For some time to come, that is, till there is a fundamental change in the structure of attitudes of management, even the association of the controlling families with the routine management of companies will continue. The reform will, over a period of time, separate the power to appoint and control management, which is bound to remain with the controlling families or their representatives, from the actual exercise of managerial functions. It will give an impetus to the building up of professional technical-cum-managerial cadres, the top members of which would be judged by their performance, not by their blood relationship and financial participation.

Apart from the reasons referred to above, it has also been pointed out that, since 1957, foreign technical and financial collaborators have been providing a large part of the expertise and resources which managing agents were said to be providing before; that the public and semi-public financial institutions set up since 1948 make available resources of a magnitude which managing agents could never raise and that their underwriting activities have largely replaced the functions of managing agents. Attention is also drawn to the fact that, unlike the European firms which established themselves in the 19th century (the foreign element in which has been withering away since 1946), new foreign private

investment comes largely from international combines which do not rely on the managing agency system.

The Monopolies Inquiry Commission, in its report (1965) while agreeing that the managing agency system played an important part in quickening industrial development, it produced a high degree of concentration of power in the hands of a few family groups. The Commission explained why it was not making any recommendation regarding abolition or control of the system. The most important of its reasons, was, the Commission's doubt whether even the total abolition of the managing agency system at that stage would have any marked effect in curbing the growth of concentration of economic power. The Commission was inclined to believe that even if the system went, its place would quickly be taken by some other system of group management or some other method which it would not be practicable to prevent. Secondly, the question of what action should be taken in addition to what had been provided in the Companies Act had to be decided not only on a consideration of its effect on concentration of economic power but as a full and careful assessment of the effects of any proposed action as the process of the country's industrial development. Another reason which was in the Commission's mind was that a Government-appointed committee was already examining the future of managing agencies in certain selected industries.

This Committee of senior officials (reference to which has been made earlier in this chapter) made its report in March 1966. After considering the position of the five industries it had selected for the purpose of its inquiry, recommended discontinuance of the managing agency system in three of them namely, cotton-textiles, cement and sugar industries. It felt that other things being equal, the system should be discouraged on wider social and economic grounds. However, the Committee felt, a reasonable time should be allowed to the Companies for a changeover to other systems. The Government however, decided to abolish the system in all the five industries: cotton-textiles, cement, jute textiles, sugar and paper and pulp at the end of a three year period.

The decision was announced in Parliament on September 5, 1966 by the Minister of Law. He also announced that the question of the continuance of the managing agency system in other established industries would be reviewed within the next three years in order to bring about their progressive reduction.

According to official figures as on April 1, 1966, there were 869 companies with managing agents. Of these, 302 companies were accounted for by cotton-textiles, cement, sugar, jute textiles and paper and pulp industries in which the system was to be abolished. This left a balance of 567 managed companies in industries and business whose cases were to be reviewed.

Decision on Total Abolition: In December 1967, Parliament was in-

formed of Government's decision to abolish the Managing Agency System altogether. Six months later, on May 10, 1968, the Minister for Industrial Development and Company Affairs, introduced in the Lok Sabha a Bill to amend the Companies Act.

The number of managed companies had been progressively going down over the years. In 1954-55, there were 5,055 such companies and by March 1964, the number had gone down to 1,272 and further to 674 by the end of March 1968. Of the 674 companies, 474 ceased to be managed companies by efflux of time that is by April 3, 1970. This left a balance of 200 managed companies.

The Amending Bill was passed by Parliament in May 1969 on Presidential assent, became an Act on May 28, 1969. Accordingly, the systems of management of companies by Managing Agents and Secretaries and Treasurers stood abolished with effect from April 2, 1970. Such companies had now to switch over to alternate forms of management: namely, (i) Board of Directors, or (ii) Managing Directors/Whole-time Directors/Managers. Appointments of Managing Directors/Whole-time Directors/Managers are made by the Board of Directors and their remunerations approved at the general meeting of the Company. Such appointments and remunerations to be paid require the approval of the Government of India. Between April 1, 1969 and March 31, 1970, the Company Law Board received 613 applications relating to Managing Directors, Whole-time Directors and Managers.

As at the end of March 1970, there were 179 managed companies and 139 managing agents (Table XXXV & XXXVI).

As on the same date, there were 23 Secretaries and Treasurers managing 52 public limited companies (Table XXXVII).

TABLE XXXV

Number of Companies Managed by Managing Agents as on 31.3.1970

(Rs. in crores)

No. of companies managed by each managing agent mentioned in Col. 2	*Number of managing agents*	*Number of managed companies Col. 1 x Col. 2*	*Paid-up capital of managed companies*
1	2	3	4
1	114	114	112.2
2	15	30	95.4
3	6	18	32.0
4	3	12	43.3
5	1	5	0.6
Total	139	179	283.5

TABLE XXXVI

Number of Managed Companies—Industry-wise as on 31.3.1970

	Cotton Tex-tiles	Jute Tex-tiles	Sugar	Cement	Paper and Pulp	Other Indus-tries	Total
A. Managed by 59 firms of Managing Agents:							
Public	7	—	1	1	4	38	51
Private	4	—	—	—	1	7	12
Total:	11	—	1	1	5	45	63
B. Managed by 15 Managing Agents organized as public limited companies:							
Public	—	1	—	1	1	24	27
Private	—	—	—	—	—	1	1
Total.	—	1	—	1	1	25	28
C. Managed by 65 Managing Agents constituted as private limited companies:							
Public	4	1	5	—	3	74	87
Private	—	—	—	—	—	1	1
Total	4	1	5	—	3	75	88
Total A, B & C							
Public (Total)	11	2	6	2	8	136	165
Private (Total)	4	—	—	—	1	9	14
Grand Total	15	2	6	2	9	145	179

TABLE XXXVII

Secretaries and Treasurers at Work as on 31.3.1970

	Number	Paid-up capital (Rs. in Lakhs)
A. **Secretaries/Treasurers working in India**	23	2,106
(i) Public Limited Companies	12	1,668
(ii) Private Limited Companies	10	368
(iii) Unincorporated Firms	1	70
B. **Companies managed by Secretaries/Treasurers**	52	1,944
(i) Public Limited Companies	52	1,944
(ii) Private Limited Companies	—	—
C. **Secretaries/Treasurers acting as Managing Agents of other companies**	11	1,272
(i) Public Limited Companies	5	918
(ii) Private Limited Companies	6	354
(iii) Unincorporated Firms	—	—

VI. Ownership and Control of Companies

The earliest data on the pattern and concentration of ownership and control of companies relate to 1927 or thereabouts. They give some idea of the concentration of ownership in cotton, jute and coal compa-

nies. Ownership was highly concentrated in cotton and coal, slightly less in jute. More recent data for the fifties indicate that about one-half of the share capital of companies is owned by individuals and the major part of the remaining one-half by companies, with the Life Insurance Corporation playing an important role as supplier of preference capital. A study of the situation in 1951 and 1958 establishes that institutional, *i.e.*, other than individual, ownership of share capital is becoming increasingly significant, mainly, because most of the subscription from the controlling interests comes from companies and trusts, not individuals. This conclusion is confirmed by the Reserve Bank which found that new companies raised the major part of their capital from other companies, 75 per cent against 36 per cent only in the case of the older companies in the sample. The Gini Co-efficient of concentration in the Reserve Bank sample was 0.82 for all sample companies together, higher at 0.89 per cent in new companies. The boom on the stock exchange which lasted from 1959 to 1961 was reported to have attracted a large number of small investors into the capital market for the first time. In view, however, of the large proportions of share capital of new companies taken up by foreign collaborators, underwriters and financial institutions, etc., a decline in the concentration of ownership since 1959 is unlikely.

The proportion of total share capital of private companies owned by Indian and foreign companies increased from about 54 per cent in 1951 to 60 per cent in 1958. The proportion owned by individuals fell from 35 to 25 per cent and that owned by trusts from more than seven to less than 6 per cent. In public companies, individuals owned more than half of the total share capital in both years but the proportions clearly tended to decline.

Indian companies owned more share capital than Indian individuals in both years (under study) in 10 out of 28 industrial heads: coal (other than mining), cotton, woollen, plantations, printing and publishing, construction, investment and finance, managing agency and trade. Also, Indian companies came to hold a larger proportion of share capital than Indian individual heads: rayon, jute, engineering, food and vegetable oil, real estate, etc. The industries in which the major part of share capital was held by Indian individuals were: power, basic iron and steel, non-ferrous engineering, sugar, glass, plastic and pottery, cement, transport, banking and insurance. In chemicals and paper too, individuals held slightly more share capital than companies.

Government's investment in both years was concentrated mainly in engineering, chemicals and cement. Life Insurance Corporation's (L.I.C.) investments were distributed fairly widely but tended to concentrate in basic iron and steel, cement, engineering, power, chemicals, paper, transport managing agency and other industry. Trusts were significant holders in cotton, iron and steel engineering, paper, hotels,

investment and finance, managing agency and other industry. During the period foreign investments increased only in iron and steel, engineering, chemicals, cement, other industry and trade.

Investment companies were the largest single occupational group of corporate shareholders in almost every industry, with the exception of coal, power, iron and steel and transport, to which chemicals and cement were added in 1958, much of the investment by industrial companies in other companies was within the same industry or represented a vertical spread, like steel investing in coal. There were however quite a few instances of significant investments in unrelated industries as for example: (1) coal received significant amounts from cotton in 1951, sugar, paper and 'other industry' in 1958; (2) paper was a receiver from cotton in 1951, coal, jute, engineering, sugar, real estate, cement and 'other industry' in 1958; (3) engineering was a receiver from cotton, sugar, jute, chemicals and paper in 1951, cotton, sugar, food and vegetable oils, chemicals, paper, cement and 'other industry' in 1958. Most of the investing 'other industry' companies were those that had diversified from cotton or jute or sugar. In addition, banking, insurance, investment and managing agency companies also had substantial holdings by industrial companies.

Occupational Diversification: Each one of the twenty companies is occupationally diversified. The larger the complex, the more diversified it generally tends to be. Consequently, concentration in India is far from synonymous with monopoly in a particular industry. To give some examples:

Tata is interested mainly in steel engineering and power, and has a variety of other interests including cement, cotton, chemicals, soap and vegetable oil, etc., bonds insurance, investments and trade. Birla has a stake in almost every industry except steel, power and transport. The interests of Martin Burn are rather limited by contrast. They carry only steel, engineering, power and transport. The interests of Dalmia-Sahu-Jain are in jute, cement, paper, chemicals, newspapers, banking, insurance, investments and trade.

Proliferation of Companies: Tata, Martin Burn and Shri Ram alone among the larger groups prefer to concentrate most of their assets in a few large companies. In Birla, Dalmia-Sahu-Jain, Bird-Heilgar, Bangur and J.K. on the other hand, there is a tendency to disburse industrial, trading and financial activity over a large number of companies. This tendency is attributable only in fact to the nature and variety of their occupational interests, for all of them (except Bird-Heilgar) have diversified many of their leading companies. Among the relatively smaller groups, some degree of justification of the number of companies is necessitated by the variety of occupations and joint ventures with other interests. Even among them, Ramakrishna has diversified two com-

panies. These differences, notwithstanding, almost every group (with fair exceptions) appears to maintain a number of Government companies *i.e.* companies, the accounts of which, show hardly any activity. This phenomenon is especially prominent in Bata, Dalmia-Sahu-Jain, Bird-Heilgar and Khatau. Besides, Birla and Dalmia-Sahu-Jain, particularly the latter, had a high level of corporate mortality, too during the period under reference.

Joint Ventures: Joint ventures, that is companies having more than one controlling interest, are a frequent and important phenomenon in the corporate section. These include foreign partners also. The overall significance of joint ventures is indicated by the fact that in 1958, out of 1,078 companies having a share capital of Rs. 361 crores, and gross capital stock of Rs. 1,121 crores, 274 companies with a share capital of Rs. 119 crores and gross capital stock of Rs. 127 crores, had foreign partners in either companies registered abroad or companies under foreign control registered in India. Of the 274 joint venture companies, 82 with a share capital of Rs. 41 crores and a gross capital stock of Rs. 106 crores were under the sole control of the decision making authority of the twenty complexes: That is to say, the groups concerned had the majority interest in them. Foreign minority partners played a significant role in these ventures, accounting for 25 companies which had a share capital of Rs. 20 crores and gross capital stock of Rs. 62 crores. The role is all the more significant because foreign participation in share capital became a necessity only after 1958 due to the foreign exchange crisis. Such joint ventures with foreign partners were prominent in Tatas, Kasturbhai and Thapar. On the whole, however, only a few groups had majority ventures, besides, Tata, Kasturbhai and Thapar, Indra Singh, Kirloskar, Seshasayee and Shapoorji. In Khatau, Martin Burn and Ramakrishna on the other hand, there were no majority joint ventures at all. Most of the joint ventures took the favour of minority participation by the groups concerned. In several cases, such participation is indirect or of the second order *i.e.* a minority venture in turn holds a controlling interest in another venture. For example, Tata has a minority interest in ACC which has a minority interest in Asbestos Cement.

Financial Structure: The twenty companies included 592 public companies in 1951 and 622 in 1958. These companies financed the greater part of their substantial expansion from external sources. About 32 per cent of the gross total funds came from loans and 24 per cent from short terms liabilities making a total of 56 per cent from borrowings. Share capital (including capitalized reserves) provided nearly 16 per cent. About 9 per cent came from free resources and 19 per cent from depreciation. On the used side, gross fixed assets absorbed more than 64 per

cent of the gross total funds raised, and nearly 21 per cent went into inventory, making a total of 85 per cent for the formation of gross physical assets. Only 3 per cent was absorbed in investments of which more than 11 per cent went into receivables and cash. The period thus witnessed a substantial increase in the ratio of debtors equity, and of fixed to working capital. These changes brought about a degree of deviation from orthodox financial standards. In 1951, the share capital of public companies was more than adequate to convert fixed assets, while reserves almost covered inventory requirements. In 1958, net worth was barely adequate even for net fixed assets.

Taking private and public companies together, the ratio of preference to total share capital declined from 20 to 18 per cent during the period. The data on shareholding cover 988 companies in 1951 and 1,079 in 1958. The various types of owners are:

1. Individuals in India
2. Indian Companies
3. Life Insurance Corporation of India
4. Government
5. Trusts
6. Foreign Individuals
7. Foreign Companies

Out of 988 (1951) and 1,079 (1958) companies, only 258 and 214 respectively were owned wholly by individuals and trusts. In both years, individuals in India owned about one half of the total share capital, Indian companies, 37 per cent, foreign investors about 4 per cent and trusts 3 per cent. There was thus no striking change in the broad pattern of ownership between these years. More specifically, the proportion of total share capital owned by individuals, both Indian and foreign and by Government, declined slightly during the period. The proportion owned by Indian companies remained practically constant at 37 per cent. The Life Insurance Corporation set up in 1956, came to acquire about 5 per cent of total share capital by 1958. If the holdings of Indian and foreign companies and the Life Insurance Corporation are lumped together, the proportion held by them rose by 6 per cent to 45 per cent. The ownership of share capital is thus evolving gradually in favour of corporate and away from individual owners.

Government's total investment in the sample companies amounted to Rs. 13.28 crores in 1951 and Rs. 15.58 crores in 1958. The Life Insurance Corporation had a total investment of Rs. 17.57 crores in 1958. The investments of Government and the Life Insurance Corporation are in the larger complexes. This pattern of distribution is largely the result of historical circumstances (integration of timely state) and market conditions at various times.

While some public industrial companies are quite widely owned, the general picture is one in which the controlling interests still hold a

fairly large proportion, in many cases the bulk, of share capital. Between 1951 and 1958, the proportion of share capital held by controlling interests in the public companies belonging to 20 business groups declined from 48 to 43 per cent under equity and 23 to 17 per cent under preference. which normally does not carry voting power. These over all proportions covered up fairly wide inter-group differences for, in some groups, the controlling interests tended to hold the predominant majority of share capital or, at least, equity capital. Inter-corporate investment is the main instrument, and an increasingly important one, for the control of companies. In both 1951 and 1958, more than two-thirds of the controlling block was held by companies, and their holdings acquired greater importance during the period.

TABLE XXXVIII

Ownership of Cotton Mill Companies, 1927

Sl. No. of Copy	*Percentage of Shares*	*Held by Number of Shareholders*	*Sl. No. of Copy*	*Percentage of Shares*	*Held by Number of Shareholders*
1	30	21	34	81	15
2	9	21	35	19	13
3	37	15	36	—	—
4	99	15	37	—	—
5	—	—	38	80	19
6	29	19	39	75	17
7	14	15	40	56	20
8	72	20	41	—	—
9	—	—	42	38	10
10	33	23	43	—	—
11	63	21	44	39	20
12	28	20	45	64	21
13	70	19	46	29	16
14	29	22	47	—	—
15	96	20	48	45	23
16	95	11	49	59	22
17	58	20	50	—	—
18	31	15	51	—	—
19	28	20	52	51	23
20	61	23	53	31	8
21	55	21	54	21	17
22	—	—	55	60	11
23	40	21	56	89	21
24	—	—	57	53	22
25	90	10	58	59	21
26	70	9	59	17	20
27	28	20	60	—	—
28	31	19	61	74	14
29	11	8	62	29	20
30	27	22	63	59	10
31	50	20			
32	50	20			
33	54	20			

TABLE XXXIX

Ownership Of Jute Companies

(Late 1920's)

Managing Agents	*Number of mills managed*	*Percentage of shares held by top 15 shareholders in each company*
Andrew Yule	8	29, 24, 14, 30, 43, 21, 26, 7
Begg. Dunlop	4	35, 30, 10, 13
Bird	7	23, 16, 13, 15, 17, 15, 16
Kettlewell Bullen	2	15, 38
Jardine & Skinner	4	6, 21, 13, 47
Mackinnon Mackenzie	2	15, 38
McLeod	4	9, 18, 1, 72
Barry	2	18, 47

TABLE XL

Ownership of Coal Companies

(Late 1920's)

Manaing Agents	*Number of managed companies*	*Percentage of shares held by top 15 shareholders in each company*
Andrew Yule	15	43, 30, 31, 27, 25, 22, 55, 26, 46, 38, 22, 34, 40, 30, 51
Heilger	7	44, 31, 68, 57, 44, 25, 28
Martin	7	19, 22, 31, 79, 18, 73, 74
Shaw Wallace	6	37, 47, 34, 24, 56, 42
H. V. Low	5	68, 17, 33, 28, 26
McNeill	7	27, 99, 30, 56, 81, 38, 65...

TABLE XLI

Percentage of Share Capital of 63 Companies held by Different Classes of Shareholders in 1957

Classes of Shareholders	*Equity Capital*	*Preference Capital*	*Total Capital*
Banks*	0.73	1.75	0.90
Insurance Companies (including L.I.C.)	4.38	14.00	6.15
Investment and Finance Companies	5.86	2.75	5.28
Non-financial (Trading and Industrial) Companies	18.08	2.94	15.32
Government	7.05	11.60	7.88
Foreigners	11.96	2.24	10.19
Individuals	51.94	64.72	54.28
Total:	100.00	100.00	100.00

*On the basis of information supplied from the share registers, holdings of banks were 4.44 per cent of equity capital, 11.48 per cent of preference capital and 5.74 per cent total paid-up capital. As most of these were nominee holdings, the figures have been replaced by estimates made on the basis of total investments of banks in shares.

TABLE XLII

Pattern of Ownership of 70 Companies by Type of Owner, 1959

Type of Owner	*No. of Accounts*	*Value (Rs. lakhs)*
1. Individuals (including joint holdings)	4,86,519 (98.87)	110,55 (52.95)
2. Institutions		
(a) Joint Stock Companies	4,461 (0.91)	8,416 (39.62)
(b) Trusts and Charitable Institutions	814 (0.17)	268 (1.26)
(c) Other Institutions (including L.I.C.)	213 (0.04)	1,235 (5.81)
3. Others	59 (0.01)	268 (1.26)
All Categories	4,92,066 (100.00)	212,42 (100.0)

Note: (1) Figures in brackets indicate percentages to total.

(2) If each joint holder is treated as separate shareholder, the total number of individual shareholders would work out to 6,86,184.

TABLE XLIII

Size-Wise Pattern of Ownership by Type of Owner

(Percentage)

Type of Owner	*Companies having ordinary paid-up capital of*	
	Rs. 4 crores and above	*Less than Rs. 4 crores*
1. Individuals	57.4	45.4
2. Institutions		
(a) Joint Stock Companies	34.8	45.7
(b) Trusts and Charitable Institutions	0.8	1.8
(c) Other Institutions (including L.I.C.)	6.0	5.6
3. Others	1.0	1.5
Total:	100.0	100.0

TABLE XLIV

Pattern of Ownership in Old and New Companies by Type of Owner

(Percentages)

Type of Owner	*Old Companies*		*New Companies*	
	No. of Accounts	*Value*	*No. of Accounts*	*Value*
Individuals	98.83	55.00	99.18	22.86
Joint Stock Companies	0.93	36.03	0.72	75.05
Trust and Charitable Institutions	0.18	1.31	0.08	0.75
Other Institutions (including L.I.C.)	0.05	6.28	0.02	1.24
Others	0.01	1.38	—	0.10
Total:	100.00	100.00	100.00	100.00

TABLE XLV

Ownership of Companies in 1951 and 1958

	Total		*Public Companies*		*Private Companies*	
	1951	1958	1951	1958	1951	1958
No of Companies	988	1,079	618	644	370	435
Total share capital (Rs. Cr.)	244.05	363.38	210.60	316.18	33.45	47.20
	(100.00)	(100.0)	(100.00)	(100.00)	(100.00)	(100.00)
Percentage held by:						
1. Individuals in India	50.0	47.0	52.9	50.5	31.7	23.8
2. Indian Companies	37.0	37.2	35.4	35.0	47 2	51.8
a. Banking Companies	(5.2)	(6.4)	(5.5)	(7.3)	(3.6)	(1.2)
b. Insurance Companies	(3.4)	(1.3)	(3.8)	(1.5)	(1.0)	(0.4)
c. Finance Companies	(20.5)	(20.3)	(18.3)	(18.5)	(33.6)	(31.9)
d. Industrial Companies	(7.4)	(7.9)	(7.2)	(6 5)	(8.7)	(16.9)
e. Service Companies	(0.5)	(1.4)	(0.6)	(1.2)	(0.3)	(1.4)
3. Life Insurance Corporation	—	4.8	—	5.5	—	—
4. Government	5.4	4.3	5.7	3.5	3.5	9.6
5. Trusts	3.2	3.0	2.5	2.6	7.3	5.6
6. Foreign Individuals	2.5	1.1	2.4	1.1	3.2	1.1
7. Foreign Companies	1.9	2.6	1.1	1.8	7.1	8.1

TABLE XLVI

Controlling Blocks in Public Companies of Twenty Groups

(Percentages of share capital)

Group	1951		1958	
	Ord.	*Pref.*	*Ord.*	*Pref.*
1. Tata	19.5	4.5	18.0	2.2
2. Birla	61.0	55.4	61.1	28.0
3. Martin Burn	25.9	7.4	23.7	3.1
4. Dalmia-Sahu-Jain	65.2	36.3	54.8	24.2
5. Bird Heilger	34.7	10.6	40.5	8.2
6. Andrew Yule	43.3	43.0	45.7	43.1
7. Bangur	79.8	46.5	68.8	25.4
8. Thapar	57.6	11.8	61.1	23.7
9. J.K.	72.8	46.0	74.7	36.4
10. Shri Ram	46.3	58.2	43.9	26.9
11. Shapoorji	72.3	—	35.5*	—
12. Khatau	67.2	16.4	68.6	17.7
13. Walchand	69.8	17.1	67.0	6.3
14. Mafatlal	68.5	2.7	69.5	7.4
15. Kasturbhai	23.4	36.5	20.1	34.3
16. Seshasayee	8.7	4.9	6.1	2.7
17. Ramakrishna	26.5	18.3	24.4	11.9
18. Indra Singh	62.6	—	40.6	41.0
19. Mahindra	8.0	22.5	37.8**	5.3
20. Kirloskar	27.9	—	27.9	1.7
Total:	48.0	22.7	43.1	17.3

*The decline occurred owing to the acquisition of the Brady group in 1958.

**The increase is mainly due to the conversion of the principal company from private to public.

About 83 per cent of the additional share capital subscribed by controlling interests between 1951 and 1958 came from companies, 12 per cent from trusts and 5 per cent only from individuals. The total share capital of companies in the 20 groups increased during the period by Rs. 93 crores, of which individuals in India and abroad provided a little more than Rs. 38 crores; the individuals who constituted the ultimate controlling interests of these groups accounted for only Rs. 1 crore out of Rs. 38 crores

Their much-talked-about role as providers of finance notwithstanding, managing agents *per se* (as distinct from the controlling interests as a whole) owned only 3.0 and 2.5 per cent of the total share capital of industrial companies in 1951 and 1958, respectively. Even as a proportion of the total controlling blocks, their holding was 8.4 per cent in 1951 and 7.4 per cent in 1958.

Subsidiary Companies: As of end-March 1963, there were 828 subsidiary companies in India with a total share capital of Rs. 218 crores, roughly 16 per cent of the share capital of all non-Government companies. Of

TABLE XLVII

Holders of Controlling Blocks in Public Companies of Twenty Groups

(Rs. lakhs)

	1951			1959		
	Total	*Ord.*	*Pref.*	*Total*	*Ord.*	*Pref.*
No. of companies	524			545		
1. Total Share Capital	16,626	12,563	4,063	25,670	1,9942	5,728
2. Controlling Blocks	6,954	6,030	924	9,577	8,588	989
(2) as % of (1)	(41.8)	(48.0)	(22.7)	(37.3)	(43.1)	(17.3)
Holders of Blocks						
(a) Managing Agents	383	347	36	569	523	46
	(5.5)	(5.8)	(3.9)	(5.9)	(6.1)	(4.7)
(b) Investment Companies	2,713	2,473	240	3,951	3,560	391
	(39.0)	(41.0)	(26.0)	(41.3)	(41.5)	(39.5)
(c) Banking Companies	88	58	30	164	115	49
	(1.3)	(1.0)	(3.2)	(1.7)	(1.3)	(5.0)
(d) Insurance Companies	301	175	126	222	154	68
	(4.3)	(2.9)	(3.6)	(2.3)	(1.8)	(6.9)
(e) Industrial Companies	1,075	815	260	1,663	1,483	180
	(15.5)	(13.5)	(28.1)	(17.4)	(17.3)	(18.2)
(f) Service Companies	53	46	7	236	212	24
	(0.8)	(0.8)	(0.8)	(2.5)	(2.5)	(2.4)
(g) Trusts	3,75	317	58	7,13	652	61
	(5.4)	(5.3)	(6.3)	(7.4)	(7.6)	(6.2)
(h) Individuals in India	1,863	1,713	150	1,978	1,812	166
	(26.7)	(28.3)	(16.2)	(20.7)	(21.1)	(16.8)
(i) Companies Abroad	62	52	10	50	50	—
	(0.9)	(0.8)	(1.1)	(0.5)	(0.6)	(—)
(j) Individuals Abroad	41	34	7	31	27	4
	(0.6)	(0.6)	(0.8)	(0.3)	(0.3)	(0.4)

Note: Figures in parentheses under (a) to (j) are percentages of the amounts shown in row (2).

these, 220 with a share capital of Rs. 130 crores were subsidiaries of companies registered outside India. The management pattern of the subsidiaries was as follows:

TABLE XLVIII

Management Pattern of Subsidiaries, March 1963

	Number	*Paid-up capital*
		(Rs. crores)
1. Managed by holding companies	56	13.01
	(3)	(4.05)
2. Subsidiaries and holding companies having common managing agents	23	6.70
3. Managed by managing agents/secretaries and treasurers	32	7.38
	(7)	(0.82)
4. Other forms of management	717	190.41
	(210)	(124 75)
Total:	828	217.50
	(220)	(129.62)

Figures in parentheses are for foreign subsidiaries. Most of the subsidiaries, particularly foreign subsidiaries, did without managing agents and generally relied upon managing directors or boards of directors.

Concentration of Economic Power: This has been measured in the private corporate sector on the basis of the share of the leading business groups in aggregate share capital and physical assets.

The four largest groups, Tata, Birla, Martin Burn and Dalmia-Sahu-Jain, had nearly 18 per cent of the share capital of non-Government public companies in 1951. This proportion rose to more than 22 per cent in 1958. Including their minority and fifty-fifty interests in other companies, the ratio went up from 22 to 27 per cent.

The share of these four largest groups in the gross capital stock, *i.e.*, net fixed assets plus accumulated depreciation plus inventory, of non-Government public companies expanded during the same period from 17 to 22 per cent. Including their minority and fifty-fifty interests, the ratio went up from 20 to 26 per cent.

In 1958, the public companies in which Tatas and Birlas had an interest of one kind or other had nearly one-fifth of the gross capital stock of all non-Government public companies.

TABLE XLIX
Public Companies in Four Top Groups
(Amounts in Rs. crores)

	Share 1951	*Capital* 1958	*Gross Capital* 1951	*Stock* 1958
1. Tata	34.88 (5.90)	65.60 (8.58)	105.23 (7.54)	287.22 (10.74)
2. Birla	36.75 (6.22)	61.26 (8.01)	62.55 (4.48)	143.44 (5.36)
3. Martin Burn	14.09 (2.38)	19.42 (2.54)	39.25 (2.81)	89.90 (3.36)
4. Dalmia-Sahu Jain	20.14 (3.41)	24.58 (3.21)	29.70 (2.12)	71.58 (2.68)
Total:	105.86 (17.91)	170.86 (22.34)	236.73 (16.95)	592.14 (22.14)

Figures in parentheses are percentages of all non-Government public companies.

The Mahalonobis Committee on Distribution of Income and Levels of Living in its report in 1964 also came to the conclusion that concentration of economic power in the private sector was more than what could be justified as necessary on functional grounds and it existed both in generalized and in specific forms. It suggested that a free time agency should make a detailed enquiry into the operations of individual companies.

Accordingly, in the same year, 1964, Government constituted the Monopolies Inquiry Commission headed by K. C. Das Gupta, a judge of the Supreme Court of India. Its terms of reference were:

(a) to inquire into the extent and effect of concentration of economic power in private hands and the prevalence of monopolistic and

restriction practices in important sectors of economic activity, other than agriculture, with special reference to (i) the factors responsible for such concentration and monopolistic and restriction practices; (ii) their social and economic consequences, and the extent to which they might work to the common detriment, and

(b) to suggest such legislative and other measures that might be considered necessary in the light of such inquiry, including, in particular, any new legislation to protect essential public interests and the procedure and agency for the enforcement of such legislation.

Incidentally, this was the first official authoritative body to find a solution to a grave economic malady. The Commission was appointed under the chairmanship of Inquiry Act 1952, and it submitted its report to Government at the end of October 1965.

Power Manifestation: The Commission concentrated its attention on the different manifestations of economic power in the private corporate sector. One such manifestation, according to the Commission, is the achievement by one or more units in an industry of such a dominant position that they are able to control the market by regulating prices or output or eliminating competition. Another is the adoption of some producers and distributors, even though they do not enjoy such a dominant position, of practices which restrain competition and thereby deprive the community of beneficient effects of the rivalry between producers and producers and distributors and distributors, to give the best service. Such practices inevitably impede the best utilization of the means of production. Also a few industrialists, obtain control of large areas of economic activity by various means. Clearly, the Commission held that concentration of economic power is the Central problem. Monopolistic and restrictive trade practices are the functions of such concentration.

The Commission, in its report, listed seven causes of concentration of economic power in private hands:

The economics of scale brought about largely by technological advances and the capital formation; the supply of managerial skill in different forms and diverse ways — the managing agency system; the investment of funds by one corporation in acquiring the assets or stocks or shares of another independent corporation. Where such investment is made in a corporation in the same line of business, it tends to promote what the Commission has termed "industry-wise" concentration. Where the investment is made in a corporation in a non-competing line of business, it helps in the growth of "country-wise" concentration. The effect on competition is particularly adverse where the investment is in

a competing line of business. The effect is bound to be considerable also where the investee company, though non-competing, is engaged in producing the raw material used by the investor corporation or in marketing the goods of the investor corporaton. Even where investment in another corporation is not of an extent to give it a control over the voting power, it is sometimes sufficient to enable it to have one or more directors on the Board of the investee company. Where such inter-locking of directors is achieved in a company in the same line of production, or a company engaged in the distribution of its product or one engaged in the production of an allied product, or of raw materials, it has clearly a tendency to increase concentration of economic power. In the period immediately following independence, the very forces which were harnessed to speed up industrialization of the country, worked at the same time to concentrate power in industry in a few individuals or families who were already wealthy and powerful. It should also be mentioned that when independence came, some British businessmen left the country. Several of their concerns passed into the hands of wealthy Indian industrialists necessarily causing an increase of concentration.

The planned economy which Government decided as the quickest way to achieve industrialization on the right lines, has proved to be potent factor for further concentration. The allocation of resources and the settlement of priorities, which planning necessarily involves, have necessitated a system of licensing for starting new industries or expanding established units or starting new units in existing industries; capital issues also had to be controlled. Big business was at an advantage in securing the required licences and was in a better position to raise large amounts of capital needed. Licensing authorities were naturally inclined to prefer men who had proved their ability by success in big industrial ventures in the past to men who had still to establish their ability. Furthermore the ability of big businessmen to secure foreign collaboration helped in obtaining industrial licences. The Commission found on examination that between 1959 and 1963, 71.6 per cent of the licences issued went to big business. The Commission said it was convinced that the system of controls by way of industrial licensing, however necessary from other points of view, had restricted the freedom of country into industry and so helped produce concentration.

In the industrial field, the Commission said that two main kinds of concentration of economic power prevailed. The first is where in respect of the production and distribution of any particular commodity or service, the controlling power, whether by reason of ownership of capital or otherwise, is in a single concern or comparatively limited number of concerns or though in a fairly large number of concerns.

These concerns themselves are controlled by only a single family or a few families or business houses; this may be called "product-wise con-

centration". Where a large number of concerns engaged in the production or distribution of different commodities are in the controlling hands of one individual or family or group of persons, whether incorporated or not, connected closely by financial or other business interests "country-wise concentration" is clearly considered to exist.

Product-wise Concentration: The Commission examined 1,298 products to measure concentration. It accepted concentration ratios of enterprises in terms of production as most suitable to give a correct idea of the market power exercises by top enterprises. The degree of concentration was defined by the extent of the share of top three enterprises in the manufacture of a product as given below:

H:	High concentration	:	75% or more
M:	Medium concentration	:	60% or more but less than 75%
L:	Low concentration	:	50% or more but less than 60%
N:	Nil	:	Below 50%

Of the 1,298 products examined, 1,131 were found to have a high degree of concentration. Sixty-three came in the medium category, 31 in the low category and 73 had nil concentration.

TABLE L

Product Concentration in 75 Business Groups

Sl. No.	*Name of Group*	*No. of pdts. in which the group cos. appear as one of top 5 producers*	*No. of pdts. in which the group cos. appear as single producer*	*No. of pdts. in which the group cos. share is between 75% and below 100%*	*No. of pdts. in which the group cos. share is between 60% and below 75%*	*Total of columns 4, 5 and 6*
1	2	3	4	5	6	7
1.	Tata	121	19	8	7	34
2.	Birla	123	13	8	5	26
3.	Martin Burn	37	—	—	2	2
4.	Bangur	15	—	—	—	—
5.	Associated Cement Company	10	1	1	1	3
6.	Thapar	21	6	2	—	8
7.	Sahu Jain	13	—	—	—	—
8.	Bird Heilgers	13	—	—	—	—
9.	J. K. Singhania	26	—	—	1	1
10.	Soorajmull Nagurmull	23	3	1	2	6
11.	Walchand	25		—	1	1
12.	Shri Ram	18	—	—	2	2
13.	Scindia	1	—	—	1	1
14.	Goenka	4	1	—	—	1
15.	Mafatlal	3	—	—	—	—
16.	Sarabhai	34	8	2	1	11

TABLE L (*Contd.*)

1	2	3	4	5	6	7
17.	Andrew Yule	6	—	—	—	—
18.	Killicks	7	2	—	—	2
19.	I.C.I.	26	5	7	1	13
20.	Kilachand	10	4	—	—	4
21.	Kasturbhai Lalbhai	20	2	2	4	8
22.	Macneil & Barry	13	2	1	—	3
23.	Jardine Henderson	14	3	—	1	4
24.	Seshasayee	14	2	—	—	2
25.	Dalmia, Jai Dayal	9	—	—	—	—
26.	B.I.C.	16	—	—	—	—
27.	T.V. Sundram, Aiyanagar	4	2	—	2	4
28.	Amalgamations	27	3	2	1	6
29.	Shaw Wallace	13	1	2	—	3
30.	Bajaj	14	—	—	—	—
31.	Binny	7	—	—	—	—
32.	Naidu, G.V.	8	—	—	—	—
33.	Mahindra & Mahindra	4	1	1	1	3
34.	Turner Morrison	16	5	—	—	5
35.	Indra Singh	6	3	2	1	6
36.	Kirloskar	12	1	—	—	1
37.	Ruia	3	—	—	—	—
38.	A & F Harvey	7	—	—	—	—
39.	Shapoorji & Pallonji	6	2	2	—	4
40.	Nowrosjee Wadia	2	1	—	—	1
41.	Jaipuria	4	—	—	—	—
42.	Thiagaraja	—	—	—	—	—
43.	Chinai	14	2	—	—	2
44.	Khatau (Bombay)	7	—	1	—	1
45.	V. Ramakrishna	4	—	—	—	—
46.	Thackersay	5	1	—	—	1
47.	Nadu, V. Rangaswami	1	—	—	—	—
48.	Gillanders Arbuthnot	13	7	—	3	10
49.	Kamani	18	2	1	—	3
50.	Vissanji	3	—	—	1	1
51.	Mangaldas Parekh	—	—	—	—	—
52.	Parry	5	—	—	—	—
53.	Wallace	1	—	—	1	1
54.	Kothari, G.D.	—	—	—	—	—
55.	Modi	—	—	—	—	—
56.	B. N. Elias	1	—	—	—	—
57.	Amin	23	3	1	—	4
58.	Balmer Lawrie	5	—	—	1	1
59.	Rallis	4	—	2	—	2
60.	Swedish Match	6	—	1	—	1
61.	Tube Investment	2	—	—	—	—
62.	Shriyans Prasad Jain	6	—	—	—	—
63.	Talukdar Law	4	—	—	—	—
64.	Kanoria, R.K.	—	—	—	—	—
65.	Finlay	1	—	—	—	—
66.	Podar	2	—	—	—	—
67.	Kothari, Madras	2	—	—	—	—
68.	Mangaldas, Jeysinghai	1	—	—	—	—
69.	Kanoria, Bhagirath	2	—	—	—	—
70.	J.P. Srivastava	1	—	—	—	—
71.	Ram Kumar Agarwal	1	—	—	—	—
72.	Muthiah	4	—	—	1	1
73.	Jatia	1	—	—	—	—
74.	Dalmia, R.K.	2	—	—	—	—
75.	Perice Leslie	1	—	—	—	—
	Total:		105	47	41	193

In addition, the Commission examined 100 products of importance to the ordinary consumer. Of these 65 products had high concentration, 10 medium, 8 low and 17 nil concentration.

The Commission has worked out the concentration ratio for 1,298 products. Of these, companies belonging to 70 groups appear as leading producers in 588 products or 45.1% of the total number of products. The remaining five business groups, namely, (1) Thiagaraja, (2) Mangaldas Parekh, (3) Kothari, G. D., (4) Modi, and (5) Kanoria, R. K. are not dominant producers in any one of the products.

Company-wise Concentration: In order to ascertain the extent of control or ownership exercised by industrial houses over a number of companies engaged in each line of product, the Commission evolved a definition. It took a "business group" to comprise all such concerns which are subject to the ultimate and decision-making power of the controlling interest in the group — the group master.

It examined 2,259 companies to ascertain their group affiliation to 83 groups in the Commission tentative list. Ultimately, the Commission decided on a list of 75 groups where assets were not less than Rs. 5 crores.

The assets of all the 75 groups, comprising altogether 1,536 companies totalled Rs. 2,605.95 crores. The total paid up capital is Rs. 646.32 crores.

What is the share of these groups in the total paid up capital and assets in the corporate sector? As on 31.3.1964, the total number of non-Government non-banking companies was 25,661 with a total paid up capital of Rs. 1,465.46 crores and assets valued at Rs. 5,552.14 crores. The proportion of assets of the 75 groups works out at 46.9 per cent and of paid up capital at 44.1 per cent.

To complete the picture, the Commission has drawn attention to the diversified activities of certain companies which have not been included in these groups. Leaving out companies with assets of less than Rs. 5 crores, there are at least 16 larger companies.

TABLE LI

Larger Business Groups Houses: Assets Not Less Than Rs. 5 Crores as on 31.3.1964

Rank	*Business Group/House*	*Total No. of Coys. in Group*	*Total No. of Coys. in Group with not less than Rs. 1 crore assets*	*Total assets of Coys. Share in Col. 4* (Rs. in lakhs)	*Paid up capital, assets, and turn over of companies in the group* (Rupees in lakhs)		
					Paid up Capital	*Assets*	*Turn-over*
1	2	3	4	5	6	7	8
1.	Tata	53	27	38,499	10,231	41,772	32,498
2.	Birlas	151	54	27,104	7,634	29,272	29,024
3.	Martin Burn	21	9	14.471	2,228	14,961	10,872

1	2	3	4	5	6	7	8
4.	Bangur	81	15	5,836	1,968	7,791	6,529
5.	Associated Cement Co.	5	3	7,599	2,423	7,736	4,413
6.	Thapar	43	16	6,176	1,429	7,190	7,061
7.	Sahu Jain	26	12	6,299	1,962	6,769	6,106
8.	Bird Heilgers	64	18	5,152	1,492	6,010	5,829
9.	J. K. Singhania	46	14	5,116	1,419	5,920	5,443
10.	Surajmull Nagarmull	76	18	4,280	1,284	5,737	4,483
11.	Walchand	25	8	5,113	1,441	5,517	5,402
12.	Shri Ram	16	7	5,237	959	5,468	5,985
13.	Scindia Steam Navigation	8	2	4,422	1,240	4,696	2,062
14.	Goenka	52	13	3,300	1,284	4,695	4,356
15.	Mafatlal	21	10	4,451	1,026	4,591	4,311
16.	Sarabhai	27	8	3,930	614	4,316	5,429
17.	Andrew Yule	29	14	3,598	1,067	4,189	3,430
18.	Killicks	14	7	3,958	1,539	4,150	2,445
19.	I.C.I.	5	5	3,689	941	3,689	3,816
20.	Kilachand	12	5	3,332	929	3,513	2,430
21.	Kasturbhai Lalbhai	16	9	3,325	792	3,394	2,620
22.	Macneill & Barry	32	5	1,999	838	2,921	2,698
23.	Jardine Handloom	20	6	2,340	831	2,851	3,142
24.	Seshasayee	13	5	2,430	1,029	2,669	1,322
25.	Dalmia Jai Dayal	15	6	2,439	881	2,657	1,907
26.	British Indian Corporation	9	5	2,301	594	2,377	2,905
27.	T.V. Sundaram, Aiyangar	17	6	1,657	448	2,187	2,333
28.	Amalgamations	28	4	1,249	537	2,173	3,343
29.	Shah Wallace	22	4	1,643	458	2,125	333
30.	Bajaj	21	6	1,647	576	2,114	2,925
31.	Binny	5	4	2,045	497	2,113	2,540
32.	Naidu G. V.	13	5	1,939	811	2,085	1,605
33.	Mahindra & Mahindra	12	3	1,814	419	2,012	2,111
34.	Turner Morrison	8	7	1,933	343	1,990	1,925
35.	Indra Singh	7	4	1,834	431	1,940	777
36.	Kirloskar	11	6	1,801	550	1,912	2,146
37.	Ruia	16	6	1,607	358	1,892	1,720
38.	A & F Harvey	12	3	1,661	341	1,869	2,114
39.	Shapoorji Pallanji	21	7	1,416	424	1,869	1,264
40.	Nowrosji Wadia	9	1	1,480	450	1,854	1,809
41.	Jaipuria	16	2	1,347	447	1,722	1,778
42.	Thiagaraja	30	5	948	471	1,681	1,796
43.	Chinai	7	1	1,528	453	1,649	1,306
44.	Khatau (Bombay)	27	2	1,044	343	1,362	1,423
45.	V. Ramakrishna	9	3	1,253	275	1,361	1,052
46.	Thackersey	12	4	1,155	126	1,351	1,500
47.	Naidu V. R.	7	3	1,147	662	1,294	618
48.	Gillanders Arbuthnot	26	3	735	275	1,283	802
49.	Kamani	14	4	1,006	226	1,206	1,255
50.	Vissanji	10	3	694	274	1,204	2,062
51.	Mangaldas Parekh	16	5	994	217	1,168	1,390
52.	Parry	7	4	1,020	261	1,168	1,891
53.	Wallace & Co.	7	2	1,049	318	1,134	763
54.	Kothari G. D.	19	4	840	148	1,131	2,155
55.	Modi	10	2	992	270	1,128	2,082
56.	B. N. Elias	5	3	1,066	235	1,119	2,044
57.	Amin	7	3	1,003	296	1,115	1,331
58.	Balmer Lawrie	7	3	936	179	1,113	2,168
59.	Rallis	10	1	717	450	1,080	2,445
60.	Swedish Match	3	2	982	209	1,074	2,392
61.	Tube Investment	4	1	849	315	1,069	1,134
62.	Shriyans Prasad Jain	12	2	817	207	1,032	764
63.	Talukdar Law	10	3	758	418	1,022	681
64.	Kanoria R. K.	20	4	620	249	961	1,028
65.	Finlay	4	4	926	190	926	1,316

1	2	3	4	5	6	7	8
66.	Podar	18	2	513	231	903	1,103
67.	Kothari D. C.	15	4	756	368	882	579
68.	Mangaldas Jaisinghbhai	12	5	789	225	847	707
69.	Kanoria Bhagirath	11	4	527	180	795	1,678
70.	J. P. Srivastava	16	3	494	312	792	1,013
71.	Ram Kumar Agarwal	37	1	242	228	727	502
72.	Muthiah	10	1	487	243	689	405
73.	Jatia	10	2	339	158	580	658
74.	Dalmia R. K.	11	2	447	266	542	412
75.	Pierce Leslie	15	1	116	207	500	360

TABLE LII

Company-wise Concentration — 16 Companies

Sl. No.	*Company*	*Assets* (Rs. in lakhs)	*Business activities*
1	2	3	4
1.	Ashok Leyland	1,065	Heavy duty commercial vehicles and engines for industrial purposes.
2.	Dunlop Rubber Co. (I) Ltd.	2,187	Automobile and cycle tyres, cycle rims, fans and vee belts, hose; conveyer and transmission belting.
3.	Dyer Meaken Breweries Ltd.	730	Beer, malt, spirit, molasses spirit, CO_2, gas, malt extract food products and breakfast food.
4.	Escorts Ltd.	816	Manufacturing pistons, X-Ray equipment, railway shock absorbers, heating element for electrical appliances, agricultural implements and motor cycles.
5.	General Electric Co. of India (P) Ltd.	1,020	Ceiling fans, propeller fans, motors, meters, radios, transformers and switch fuses.
6.	Godrej Boyce Mfg. Co. Ltd.	1,057	Manufacturing steel furniture, typewriters, refrigerators, locks and pork-lift trucks
7.	Guest Keen Williams Ltd.	1,875	Special steels, steel bars, bolts, nuts, rivets, railway permanent way material, electrical stampings for fans, motors and generators, transformer laminations, pressed components and assemblies for automobiles, textile and other industries.
8.	Hindustan Lever Ltd.	1,992	Soaps, toilet preparations, *vanaspati*, dehydrated vegetables and non-soap detergents.
9.	Indian Aluminium Co. Ltd.	2,182	Aluminium, ingots, rolled prevent extrusions paste, power and pyrotechnic powder, chemicals, alumina and carbon electrode paste.
10.	Indian Oxygen Ltd.	1,213	Oxygen, dissolved actylene, electrode gas welding and cutting equipment.

1	2	3	4
11.	Metal Box of India Ltd.	1,082	Containers, closures and plain/lithographed sheet metal products, industrial components, machinery, paper and board products, flexible packages and plastic products.
12.	National Insulated Cable of India Ltd.	555	Bare copper wire, aluminium conductors, copper cadmium grooved conductors; cotton and paper covered wires and strips, VIR/PVC cables and flexibles.
13.	Phillips India Ltd.	895	Radios, radio components and parts, fluorescent lamps, fittings and accessories, burners for mercury vapour lamps, electronic service and industrial measuring instrument sound equipment; tungsten and molybdenum wire and tungsten coils.
14.	Siemens Engineering and Manufacturing Co. of India	929	Motor starters, distribution switchgear switchboards, X-Ray units; railway signals; mechanical portions of cargo winches and topping winches, HRC fuses, fure bases' tripple pole fuse isolators.
15.	Union Carbide India Ltd.	1,223	Dry cells, zinc strips, flash light cases, polythalyene, chemicals, cinema arc carbons, carbon electrodes.
16.	Glaxo Laboratories (India) Private Ltd.	1,109	Bata Ionenem, Corticosteroids, Vitamin A, Calcium sennosides, hydroxocobalamin, ointments, vaccines, antibiotic powder vials; infant milk food.

Monopolistic and Restrictive Practices: The Commission came to the conclusion that in a large number of industries, a single undertaking is the only supplier or at least has a very large portion of the market as compared with its competitors. It has the power to dictate the price of the commodity or services it supplies and to regulate its volume of production in such a manner as to maximize its profits — monopoly power. Monopoly, according to the Commission, would include not only the single supplier in a market but also the one dominant supplier who dictates the market price. It emphasizes that when such a power is shared by a few enterprises as dominant sellers, they should be considered as holding a monopolistic position.

A distinction has been drawn by the Commission between "monopolistic practice" and "restrictive practice" while conceding that on the face of it every monopolistic practice is a restrictive practice. It explains that every practice whether it is by action, or understanding or agreement, formal or informal, to which persons enjoying monopoly power, resort in exercise of the same, to reap the benefits of that power and every action, understanding or agreement, tending to or calculated to preserve, increase or consolidate that power should properly be

designated monopolistic practice. Similarly a restrictive practice means practices other than those preserved by monopolists which obstruct the free play of competitive forces or impede the free flow of capital or resources into the stream of production or of the finished goods in the stream in distribution at any point before they reach the hands of the ultimate consumer. The Commission analyses the various ways in which industrialists in India resort to monopolistic and restrictive practices and says these are attempts by monopolists and near monopolists to keep out or crush competitors.

The bright picture of what concentrated economic power has achieved in the past and is fairly certain to achieve in the future, says the Commission, must not make us blind to certain evil effects of such power on the country's economy. The most serious of these, it points out, is the risk of the emergence of monopoly with its attendant evils and keeping out the small industrialists. "Big business" by its very "bigness" sometimes succeeds in keeping out competitors. "The statements made before us by some small businessmen have convinced us that both price wars and threats have been used by dominant *entrepreneurs* in India, with a view to maintaining their domination," the Commission has observed. It adds, "The dangers from concentrated economic power and monopolistic and restrictive practices are not imaginary but do exist in a large measure either at present or potentially. We are clearly of opinion that a permanent body should be set up with the duty and responsibility for exercising vigilance and for taking action to protect the country against the dangers that we think do exist."

Accordingly, the Commission in its report has included a draft bill for the purpose.

Statutory Commission: Subsequently in 1967 Government introduced in Parliament its own Bill called "The Monopolies and Restrictive Trade Practices Bill" which was finally passed and assented to by the President on December 27. 1969. In 1970, the Monopolies and Restrictive Trade Practices Commission was set up with a High Court judge as chairman and two members.

Under the Act, the Commission has an advisory role in matters concerning expansion, diversification, mergers and amalgamations as well as monopolistic practices. It has mandatory powers in respect of restrictive trade practices

The Act does not apply to banking and insurance companies to the extent they overlap with the provisions of the special enactment governing them. It also does not apply to Government or Government controlled undertakings.

The Act *inter alia* provides for:

(1) Regulating expansion, mergers and amalgamations and appoint-

ment of Directors in respect of dominant undertakings having assets of Rs. 1 crore and above and of undertakings, which by themselves or with inter-connected undertakings have assets of not less than Rs. 20 crores in value.

(2) Regulating the starting of new undertakings which would become inter-connected undertakings the total assets of which exceed Rs. 20 crores.

(3) Control over and prohibition of monopolistic and restrictive trade practices as are found to be prejudicial to public interest.

The Commission has been vested with the powers of a civil court under the Civil Procedure Code.

The Commission also made several recommendations which are non-legislative in character. A very important recommendation relates to the industrial licensing system. While conceding that at the present stage its abolition is not practicable, it suggests that licensing policy should be liberalized. It should be made easy for the comparatively smaller *entrepreneurs* to get industrial and import licences expeditiously and without undue expenditure. Licensing, the Commission points out, can be used to good purpose by Government in fighting concentration wherever necessary.

Role of Licensing System: Meanwhile, Government's industrial licensing system was the subject of official study as well as of public discussion. A study made on behalf of the Planning Commission revealed that the large and medium sized business groups enjoyed a higher ratio of approval in industrial applications as compared to others and that their share in the investment applied for and approved had tended to rise over the period. This was certainly true about certain Business Houses, the most important of which, according to the Study, was the House of Birlas. When this matter came up in Parliament in May 1967, Government announced that a Committee would be appointed to go into the basic questions regarding the functioning of licensing system and any advantages obtained through it by some of the large industrial houses.

The Industrial Licensing Policy Inquiry Committee was set up a few weeks later. In its report in 1969, the Dutt Committee, so named after its Chairman, observed that in the earlier years, licensing was guided more by technical than by economic, leave alone, social considerations. Not only no attempt was made to use licensing to prevent the further growth of the larger industrial houses, but the process actually worked in their favour. Even after the Monopolies Inquiry Commission had made its report, no clear question was issued to the licensing authorities and the financial institutions as to how they should treat applicants from large houses.

The licensing system worked in such a way as to provide a dispro-

portionate share in the newly licensed capacity to a few concerns belonging to the large industrial sector, the most prominent among them being the Birlas. The Committee found no justification for the disproportionate share obtained by these Houses.

A large proportion, nearly 32 per cent of the licences issued during the period 1956-66 were not implemented. Non-implementation of a licence for products where there is interest and competition is a definite indication of pre-emption. The Committee found that among the Houses which were responsible for various forms of pre-emption, the most prominent was Birlas. They held the largest number of unimplemented licences, made repeated attempts to obtain a large number of licences for many products, created excess capacities and tried to have them regularized afterwards and also produced more than authorized capacities.

In spite of its failure and defects the Committee was of the view that the licensing system must continue if industrial development was to take place as part of an overall development plan. The Committee held that licensing had only a small role to play in preventing concentration of economic power. The major instrument for obtaining the objective was the Monopolies and Restrictive Trade Practices Commission.

Financial Institutions: The Dutt Committee has dealt with the role of public financial institutions with reference to the prevention of the concentration of economic power on the one hand and the growth of the public sector on the other. The objective contemplated in the Industrial Policy Resolution of 1956, that the State would play an increasingly active role in a number of newly developing industries had not been achieved to any significant extent. On the other hand, investment funds of the Life Insurance Corporation which could be made available to the priority industries in the public sector had been diverted to the private sector. A number of new industrial projects in the private sector had been established only on the basis of a large proportion of their costs being met through assistance provided by public financial institutions. In many concerns, the State, through the L.I.C. and other financial institutions held significant proportions of equity capital. But this equity had not been utilized for effective participation in the management of these concerns. By providing a large part of the assistance as debentures or loans, the public financial institutions had also denied themselves a share in capital appreciation. The Committee urged a thorough change in these policies. Where a very large proportion of the cost of a new project was to be met by public financial institutions, it wanted these projects to be set up in the public sector. Ordinary shareholders and even some private

concerns could be associated with them and the Companies Act did provide for it. In such an event the Committee recommended that the projects should be in what it called the Joint Sector. One important advantage of the joint sector project was that the Large Industrial Sector would not be permitted to build up huge industrial empires. In a joint sector project, there should be proper representation for the State in the management. The financial institutions could insist on the whole or part of the assistance given by them as loans and debentures being converted into equity. The equity holdings of public financial institutions including the L.I.C. and the Unit Trust of India should be effectively used for enlarging the role of the State in the management of private sector industry.

Industrial Planning: The need for detailed industry plans for licensing has also been emphasized by the Committee: Such planning was essential, said the Committee for licensing, to be used as a positive instrument for co-ordinated and planned development. Without detailed planning, decisions on applications for licences, whether in terms of size, technical process or location would continue to be *ad hoc* and purely discretionary in character. In that situation existing faults in the licensing system could not be avoided.

In the present circumstances the Committee would like the use of industrial licensing as a positive instrument only for the basic, strategic and critical sectors — the 'core' sector — for which industry plans should be drawn up. A system of reservations and bans could be used for preventing undersizeable developments. The present policy of reserving certain areas of production for small and medium industries was right and should be continued. Bans on the creation of further capacity should be used for preventing the development of non-essential luxury goods which made large drafts on scarce resources. Negatively bans could be useful for regional dispersal of industries and thus avoid industrial concentration in metropolitan areas.

Limited use of licensing has been recommended in the 'middle' sector which is neither included in the 'core' sector nor in the 'Reservations' and 'Bans'. This the Committee felt was necessary to prevent the 'Larger House' or foreign concerns dominating the sector.

Since receiving the Committee's report, Government has taken action to streamline and simplify the licensing system and to lay down guidance for public financial institutions giving term loans to the private sector.

Sarkar Commission: Government also set up in February 1970, a one-man Commission of Inquiry headed by A. K. Sarkar, former Chief Justice of India in respect of certain findings of the Dutt Committee

on the Large Industrial Houses especially the Birlas. These are:

1. Irregularities, lapses or improprieties said to have taken place in the grant, utilization and implementation of industrial licences.
2. The financial assistance given by public financial distributions has gone to a large extent to certain groups which have benefited most.
3. Allegations of the exercise of undue influence by the Birla group of concerns on/or obtaining of undue favours from Government of industrial licences, gross irregularities in the management of these concerns amounting in many cases to contravention of law and of other improprieties or illegalities.

VII. Industrial Finance

In the early years of this century, there were only two institutional sources of industrial finance within the country, *viz.*, managing agents and banks. There was no capital market in the proper sense of the term though stock exchanges existed in Calcutta and Bombay. Both long and short term finance was raised by promoters from their own resources (personal taxes, if any, were nominal and profits were high) or from relatives and friends — and princes and zamindars. Banks provided accommodation mainly for the financing of external trade; their assistance to industry was confined to export commodities and that, too, largely to European houses which were able and willing to satisfy the banks about their creditworthiness.

Indian businessmen, (as became clear in the course of evidence before the Central Banking Enquiry Committee (CBEC), as late as the thirties) were generally averse to the idea of submitting their affairs to bank scrutiny and of pledging or hypothecating their assets. The precise role of managing agents as financiers at that time — or till the fifties for that matter — cannot be quantified. It can be safely assumed, nevertheless, that in most cases they provided the bulk of finance at that time; in some companies, however, they acted almost wholly as local managers for foreign investors.

While banks were traditionally chary of financing the needs of industry as distinct from trade, there were two periods when some new Indian banks took a keen interest in long term financing. In the seven year period, 1906-13, the banks which rose on the crest of the Swadeshi wave, freely subscribed to the shares and debentures of industrial companies and advanced what were, by contemporary standards, large amounts on the security of fixed assets, often to the concerns in which their promoters were interested. Prominent among these banks were People's Bank, Indian Specie Bank, Hindusthan Bank, Lahore Bank, Doaba Bank, Marwar Bank, Industrial Bank and Credit Bank of India.

Nearly all of them had a narrow capital base as their deposits were all short term. They violated every known principle of investment banking and made imprudent and reckless loans. There was a severe banking crisis in 1913-15; no less than 34 per cent of the paid-up share capital of banks was lost; the depositors recovered their money largely from shareholders (bank shares were generally partly paid-up), not from the assets of borrowers.

Four Industrial Banks: Industrial banks were the rage between 1917 and 1923. The Tata Industrial Bank was established in 1917 with a share capital of Rs. 2.25 crores, Calcutta Industrial Bank in 1919 with Rs. 80 lakhs, Industrial Bank of Western India, also in 1919 with Rs. 40 lakhs and Karnani Industrial Bank in 1921 with Rs. 60 lakhs. The Tata Bank was set up to finance the development of new and existing industries, to promote industrial companies and support them by underwriting their shares and debentures, and to be always prepared to retain a considerable holding of shares in such companies, as an earnest of its belief in the bona fides and prospects of the companies concerned. It set up a subsidiary to finance certain subsidiary companies, undertook every description of banking business, and opened twelve branches. Its investments soon depreciated heavily and the bank was merged in the Central Bank of India in 1923. In spite of its relatively large capital base, its resources were mainly short term; moreover, the investments were not properly assessed and the principle of holding on to large investments, especially in other Tata Companies proved misconceived. The other Industrial Banks were managed even worse and faded out soon.

The history of somewhat crystallized thinking on the need for what were than described as industrial banks dates back to the advice of the Bombay Advisory Committee of the Indian Industrial Commission 1916-18, which favoured "the establishment of a central industrial bank or similar organization with a large capital and numerous branches, designed to afford financial support to industries for longer periods and on less restricted security than is within the power or practice of existing banks. Such a bank would probably require a measure of Government support, but should not be brought under rigid Government control." That this plea should have been made in the second decade of the century and in Bombay is interesting. War demand, larger Government purchases in India and a considerable degree of success in running cotton, jute and coal undertakings had created prospects of large scale industrialization, for which the resources of eager promoters and their friends were no longer sufficient. The capital market was still undeveloped, notwithstanding the exceptional successes which a few concerns like Tata Iron and Steel had achieved in raising capital from the market. Resort

to bank finance was unpopular; the more reputable banks were not, in any event, interested in extending long term finance to industries, particularly to units under Indian management. Business houses in Calcutta, being mostly foreign, had ready access to British investors, a source which could not be tapped by Bombay and Ahmadabad industrialists.

Recommendations of Commission: The Industrial Commission considered the question of the best agency for the provision of initial and current finance for industries. It rejected the idea of an industrial trust or financial corporation on the ground that it would be too directly concerned in the success of particular undertakings to be a suitable instrument for the general advancement of industries, though it could be a useful agency for furthering particular industrial interests. The Commission preferred an industrial bank which, if wisely conducted, "is benefited by an increase in the number of individual undertakings, and it can, to some extent, prevent their extension beyond the safety point." While suggesting the early appointment of an expert committee to consider the form of Government assistance to and regulation of, additional financial facilities, whether central or provincial or both, it expressed the view that

> "an industrial bank should possess a paid-up share or debenture capital high in proportion to its total business; it should observe the usual precautions of not allowing too large a share of its funds to be used for the benefit of any single interest or group of financially interdependant interests; its loans on plant building and land should be carefully considered and should be limited in each case; the larger portion of its industrial business should be confined to the provision of working capital; it should provide initial capital with caution, at any rate during its opening years, and should not itself attempt to promote companies, though it may advise and assist in other ways persons who propose to do so. The main factor of safety in an industrial bank is the judicious limitation of each class of business to its proper proportions."

State Aid to Industries Act: It is, perhaps, more than a coincidence that the initial set up of the Industrial Finance Corporation of India established thirty years later conformed remarkably to these recommendations, except that it did not emphasize working capital and did lend a large part of its funds to one industry, namely, sugar. The Commission went on to suggest a scheme for aid to small industries which culminated in State Aid to Industries Acts/Rules in various provinces. As regards large industrial undertakings, the Commission believed that, if adequate technical advice and an undertaking to purchase output were provided by Government, private funds would be forthcoming without

Government aid in the majority of cases. Financial aid for projects required for national safety should come exclusively from the Centre and for others from Provincial Governments (subject to Central sanction) where they had the necessary expert staff. Government assistance, the Commission suggested, may take the form of guarantees of dividends, or loans or assurance to purchase output and, only in cases of enterprises "of importance to national safety" where sufficient private capital is not secured, participation in share capital. Subventions for the payment of guaranteed dividends should be refunded from the future profits of the enterprise when they reach a predetermined percentage and the guarantee should be only for a limited period. Loans were held suitable for concerns with assets of a comparatively liquid nature but need not be confined to these if Government was fully satisfied about the prospects of the undertaking. Agreements to purchase output could be freely given to concerns manufacturing articles not previously made in the country but should be limited in time and accompanied by suitable conditions governing quality and price.

As a safeguard, in all cases of direct assistance, Government was to satisfy itself about the financial status of the promoter and the economic and technical aspects of the proposed industry and secure rights of inspection and audit and nomination of directors but without involving Government interference in their working. The capital of assisted enterprises should be raised in India in rupees and allotment of shares should be such as to enable small investors and the Indian public to participate. While there need be "no limitation on Government aid to a new enterprise, on the ground of its competing with an established external trade" it would be desirable to secure a *quid pro quo* in the shape of preference to Government orders or acceptance of a certain number of apprentices, etc.

In the twenties, a number of provinces enacted legislation for aid to small industries but the results of the little aid provided did not come upto expectations. Some assistance was also extended to large enterprises, notably in Madras (Tamil Nadu), Bihar and Orissa, Bengal and the United Provinces (Uttar Pradesh). Included in these were the Tamil Nadu Government loan of Rs. 474,000 and guarantee for overdraft of Rs. 134,000 to Carnatic Paper Mills between 1925 and 1928; but in the year 1928, Government had to take possession of its assets. Bihar and Orissa investment of Rs. 5 lakhs in Indian Steel Wire Products failed, to rescue the company. Uttar Pradesh gave loans to five concerns between 1922 and 1925, ranging from Rs. 80,000 to Rs. 600,000, (total Rs. 13 lakhs) but all the five enterprises foundered. A Bengal loan of Rs. 8 lakhs to a paper company in 1924-25 was actually an advance payment for orders placed; but it saved the company from external competition.

Advance Factors: The implementation of the recommendations of the Industrial Commission was bedevilled by a number of factors. The post-war boom in industrial and banking flotations completely petered out by 1923, thereby eroding public confidence in new enterprises. Consistent decline in agricultural prices and adverse terms of trade reduced internal purchasing power. Cheap imports from foreign countries made the establishment of new industries difficult and raised demands even from existing industries for protection, which Indian industrialists (especially those who went into sugar in the thirties) soon found more useful than irksome and miniscule financial aid from Government. Local enterprise found a safe haven in traditional industries, cotton, jute, tea, coal and minor light engineering, which despite difficult times, had a reasonably assured level of internal demand and could also raise capital with comparative ease. Government, too, was none too eager to lend a helping hand since it was worried about its own finances.

Long Term Industrial Financing: The question of long term financing of industry was raised at length before the Central Banking Enquiry Committee which, however, made only two broad recommendations in this connection: (i) 10 per cent of the capital and reserves of the Imperial Bank and nine other large banks could be utilized for investment in the shares and debentures of industrial companies and (ii) central and/or provincial industrial banks could be set up with Government participation in the share capital to provide limited assistance to industries. Neither of these recommendations was acted upon.

In the absence of any specialized financial institutions, industry fell back upon subscriptions and deposits from the public and, beginning with the early forties, banks, too. The exact pattern of the sources of industrial finance through the thirties and forties is not known due to lack of data. In the western region, *i.e.*, Bombay and Ahmadabad, public deposits were an important source of finance. According to the Central Banking Enquiry Committee, total unsecured loans (mostly deposits) of Bombay cotton mills in March 1924 amounted to nearly Rs. 12 crores, which declined to less than Rs. 3 crores in October 1930, when the industry was in a depressed condition, but which came even then to 11 per cent of their total finances. In Ahmadabad, public deposits provided nearly 40 per cent of the financial requirement of cotton mills in 1930.

In Bombay, the deposits were mostly for six to twelve months and the rates of interest varied from 4½ to 6½ per cent Loans from banks were personally guaranteed by managing agents and also secured collaterally against hypothecation (not pledge) of the liquid assets of the borrowing companies. In some cases, the managing agents provided finance in consideration for acting as buying and selling agents of the managed

companies. The deposit system in Ahmadabad was more elaborate, partly because many of the reputable managing agents were originally bankers and attracted many rural depositors also. The older mills normally raised one-year deposits but the newer ones accepted deposits upto 7 years and offered in return a share in the managing agency commission and, later, shares in the managing agency company than the managing agents incorporated themselves. Deposits varied from five to ten thousand rupees on the average. In the days of prosperity, when mills accumulated large funds, the practice grew of inter-depositing, which replaced deposits from rural areas as they fell off after the slump in agricultural prices.

In Calcutta, the needs of European business houses were met largely by banks and in so far as their managing agents substantially reduced their holdings of share capital, the Indian public (mostly zamindars and prosperous traders) avidly took them up. The guarantees of Calcutta managing agents were not personal or unlimited as in Bombay but were merely a certificate to the effect that loans were always covered by stocks. The needs of small tea gardens and coal mines were met largely by zamindars and money-lenders.

This pattern of financing could be availed of only by traditional industries, in which alone banks and public depositors had confidence. New industries had little chance.

Post-War Plenty: During and immediately after the Second World War, industrial finance was not much of a problem, though the requirements of cotton, jute and iron and steel for rehabilitation and modernization were large and were not matched by adequate internal resources. Equipment was difficult to get. Most companies had build up large liquid balances or were entitled to refund of Excess Profits Tax deposits. General liquidity in the economy assured the success of public issues (there was a remarkable boom in 1946 followed by its inevitable aftermath) and the circulation of large amounts of concealed wealth and income provided abundant funds. Banks, too, were flushed with funds, their liquidity ratio being as high as 80 per cent. The partition and political disturbances which followed also kept down the pace of industrial investment. The availability of entrepreneurial finance was, in fact, large enough to enable several Indian business houses to buy out many European managements in leading centres at fabulous prices.

Data on the sources and uses of funds in the corporate sector were collected for the first time by the Taxation Enquiry Commission 1953-54. Its analysis of the finances of 407 selected public companies during the period 1946-51 disclosed that they raised about one-half of gross total funds internally, depreciation and EPT refunds contributing a large proportion. The external funds came in large measure from share capital

and bank loans. About one-half of the funds raised went into fixed assets and one-third into inventory. Investment in Government securities was substantially reduced and cash balances were raised considerably.

In the period 1951-54, which corresponded roughly with the First Five Year Plan, public companies relied to a much greater extent upon internal resources (depreciation contributing one-third of gross total funds) and short term trade credits, much less upon banks. A much higher proportion, 62 per cent against 49 per cent in 1946-51, of gross total funds was invested in fixed assets and less than 13 per cent in inventory. Liquidity was still not unduly strained; cash balances and investments in other companies went up significantly.

Industrial Finance Since 1951: The First Five Year Plan was mainly a rationalization of the projects already in existence. The programme for large scale industry envisaged a total capital expenditure over 1951-56 of Rs. 477 crores, Rs. 94 crores in the public sector including an expected foreign and domestic participation of Rs. 20 crores, and private investment of Rs. 233 crores, exclusive of Rs. 150 crores for replacement and modernization of plant and machinery. Finances for public enterprises were to be raised by Government investments and loans. No precise estimates were made of the sources of finance for private investment. The various sources merely enumerated Government and World Bank loans, foreign capital and financial institutions. The actual achievement was Rs. 57 crores in the public sector, and Rs. 340 crores, including Rs. 150 crores on modernization and rehabilitation, in the private sector.

The programmed expenditure on industries (excluding minerals, oil and plantations) during the Second Plan (1956-61) was Rs. 1,100 crores, plus Rs 150 crores for modernization and replacement, of which Rs. 620 crores was to be in the private sector. Actual private investment, according to Planning Commission estimates, came to Rs. 850 crores.

The higher than expected level of financial achievement (though physical targets realized were only 85 to 90 per cent) was made possible by the larger inflow of external capital, buoyancy of the capital market and greater assistance from financial institutions. More comprehensive data for the corporate private sector as a whole given by the Reserve Bank indicate that, among domestic sources, banks provided the major part of external financing. Internal sources, *i.e.* depreciation and retained earnings, provided 53 per cent of gross total financing. Finance corporations played a very minor role.

Institutional agencies as a source of external finance for industry have grown steadily in importance since 1955. This has taken the form of

larger bank loans and to some extent investments, substantially greater assistance from the Life Insurance Corporation of India, the Industrial Finance Corporation of India and the Industrial Credit and Investment Corporation of India, together with other financial institutions. One of the yawning gaps in the institutional structure of the capital market, namely, the practical absence of underwriting facilities, has been largely filled by now.

Insurance Companies: Before proceeding to the somewhat detailed analysis of institutional developments, the growth of assistance from insurance companies and banks to industry may be briefly recorded here. The earliest data on investments by insurance companies date back to 1913, when they had invested Rs. 11 lakhs only in shares and debentures. This figure grew to Rs. 4.38 crores on the eve of the Second World War and to Rs. 13.04 crores at its conclusion in 1945. The total investment before nationalization of life insurance was nearly Rs. 59 crores.

The explanation for the rather low level of insurance investments in private securities lies in (i) the slow growth of insurance business itself; (ii) the practice, moderated only since the mid-fifties, of investing heavily in Government securities, and (iii) the relatively small number of private securities traded in the capital market till 1960.

Banking in Two Decades: The twenty years spanning 1949 and 1969 are a major landmark in the history of banking in India. It was in the year 1949 that the Banking Regulation Act was passed and in 1969 fourteen major commercial banks were nationalized. These two decades also covered the first era of planned economic development in which the banking system sought to adapt itself to the major changes in banking structure and policy.

The credit portfolio of scheduled banks rose faster (550 per cent) than deposits (420 per cent) in these twenty years. This sharper expansion reflects the pace of growth in the organized industrial sector. The banks had largely catered to this sector which in turn had put increasing reliance on bank credit in proportion to other sources of funds. Consequently, as a proportion of total credit, lending to industry rose from about a third (Rs. 152 crores) in 1950 to over two thirds (Rs. 2,068 crores) in 1968.

Within the industrial sector, the share of industries such as iron and steel, engineering, chemicals, cement and textiles showed significant increases. Out of a total of Rs. 2,068 crores (1968) as industrial advances Rs. 114 crores was given to State owned or State managed industrial concerns. Nearly 85 per cent of this credit amount went to public sector engineering, iron and steel, fertilizer and fuel oil manufacturing

industries and mining and electricity generation and distribution concerns.

Other public sector industrial concerns which received bank credit were sugar, cotton textiles, chemical products, cement construction and shipping concerns.

In this context must be mentioned the emergence of banks as term lending institutions in the last few years. Fifteen years earlier, they confined themselves to the short term credit needs of industry. With the establishment of the Refinance Corporation for Industry (subsequently replaced by the Industrial Development Bank of India), banks have been able to increase their involvement.in this sector. This is in addition to the contribution made by the banking system to the capital stock and debentures of the specialized financial institutions.

Objectives of Nationalized Banks: Nationalization of Banks came into force on July 19, 1969 and its broad aims promised a fair deal to the hitherto neglected sections of the community. The preamble to the Act says: "to control the heights of the economy and to meet progressively and serve better the needs of development of the economy in conformity with national policy and objectives." It will be the endeavour of the nationalized banks to ensure that the needs of productive efforts of diverse kinds, irrespective of size and social status of the borrower and in particular those of farmers, small scale industries and self-employed professional groups are met in an increasing measure. It will also be a primary objective of nationalized banks to foster actively the growth of new and progressive *entrepreneurs* and to create fresh opportunities for backward areas in different parts of the country.

These objectives called for extensive changes in the bank's attitudes and methods of work. Particularly, it became necessary for them to reorient the concept of security for loans to pay special attention to the growth potential and developmental needs of local areas where the branches are situated, to take better care of underdeveloped areas and backward sections of the population, to forge close relations with developmental and term financing institutions, to ensure that large borrowers do not have more access to the resources of the banks than is actually required for production use and to prevent use of credit for speculative and unproductive purposes.

Credit Guarantee Scheme: In order to cover the credit risks incurred by banks in granting loans to small scale industries, the ten year old Central Government's Credit Guarantee Scheme was modified and brought into force on February 1970. Under the modified scheme, the guarantee is made available to all eligible advances on an automatic

basis in terms of an agreement executed by each approved credit institution with the Guarantee Organization. The credit institutions which join the scheme are required to report all their eligible advances at quarterly intervals which form the basis for changing the guarantee fee at one tenth of one per cent per annum on a quarterly basis. This change in procedure is expected to expedite the flow of institutional credit to the small scale sector, particularly the weaker units.

At the suggestion of the Guarantee Organization, 74 banks and 16 State financial corporations have agreed to bear themselves the guarantee fee instead of recovering it from their constituents. With these guarantee facilities, credit institutions are expected to liberalize where necessary, their terms of lending, particularly in regard to margin requirements. Soft loans or loans on clean basis, wherever deserving, might be extended especially for schemes promoted by qualified technicians/*entrepreneurs*. Where there is a default, the Guarantee Organization makes a swift examination of the possibility of its rehabilitation. In deserving cases the credit institution is urged to take on a programme of nursing.

By the end of June 1971, 149 credit institutions including all the major commercial banks and state financial corporations and 56 co-operative banks had joined the modified scheme. The amount of guarantees outstanding on that date stood at Rs. 790.97 crores as against Rs. 661.77 crores at the corresponding period in the previous year. Since the inception of the guarantee scheme (two years ago) claims of 200 guarantee obligations for an aggregate sum of Rs. 27.15 lakhs were paid to the credit institutions. However, at the end of March 1971, defaults which might eventually lead to settlement of claims, covered 1,799 cases for Rs. 589.04 lakhs as against 463 cases for Rs. 141.97 lakhs at the end of June 1970.

Small Scale Sector: Bank credit to small scale industries has also been growing in the second decade of 1949-69. Between 1960 and 1968, it had risen from Rs. 28 crores to Rs. 211 crores, and by the middle of 1969, it had further gone up to around Rs. 295 crores, thanks to the special efforts of the banks. The tempo was maintained and by March 1971, total credit limits sanctioned reached the figure of Rs. 868.3 crores over and above the increase of Rs. 156.8 crores in the corresponding period of 1969-70. The number of units financed rose from 89,307 to 103,550, that is to say by 15.9 per cent.

The share of industrially backward states in advances to small scale industries has gone up since June 1968, the increase being particularly marked in Andhra Pradesh, Bihar and Uttar Pradesh.

Public Sector Banks: The banks in the public sector accounted for

89 per cent of the total outstanding credit to small scale industries, the share of the State Bank of India group being 40 per cent. This group sanctioned credit limits of Rs. 320.4 crores which was Rs 28 crores over the 1970 level. The contribution of the 14 nationalized banks amounted to Rs. 459 crores at the end of March 1971, a rise of Rs. 47 crores.

Loans sanctioned by the State Bank group under their scheme for financing craftsmen and other qualified *entrepreneurs* amounted to Rs. 7.1 crores covering 562 units. This was more than double the quantum of loan and number of units in 1970.

Following the State Bank's lead, a number of banks, including some nationalized banks have drawn up special schemes for assisting qualified *entrepreneurs* who have worthwhile small scale industrial projects but do not have the finance. According to information available, seven nationalized banks had under their own schemes, sanctioned Rs. 1.35 crores covering 540 *entrepreneurs* as at the beginning of December 1970.

TABLE LIII

Bank Assistance to Industry

Rs. in crores

	1950	*%age of total*	1968	*%age of total*
1. Shares and debentures	14.37	3.5	77.40	5.5
2. Advances	152.36	32.0	2,067.00	67.5
3. Of 2 advances to traditional industries	80.00	21.5	647 00	20.7
Total: 1 and 2	166.73	22.3	2,144.40	26.2
Plantations*	35.06	2.7	57.62	1.9

Note: Traditionals are cotton, jute, other textiles and sugar.
*Plantations have been classified only from 1961.

TABLE LIV

Scheduled Banks' Advances to Industry as on March 31, 1968

Rs. in lakhs

Sl. No.	*Industry*	*Amount*	*% age of total*
1.	Cotton (ginning, processing, spinning and weaving, etc.)	31,699	10.0
2.	Jute	9,550	3.1
3.	Other textiles	7,314	2.4
4.	Iron and steel	11,435	3.7
5.	Coal, other mining and quarraying	5,099	1.7
6.	Engineering	47,964	15.7
	(a) Heavy engineering	27,186	8 9
	(b) Light engineering	20,778	6.8
7.	Sugar	16,136	5.2

1	2	3	4
8.	Vegetable oils (including *vanaspati*, soap etc)	4,324	1.4
9.	Chemicals, Dyes, Drugs fertilizers and pharmaceuticals	18,453	6.0
10.	Public utilities (as transport and communications, gas, electricity etc.)	5,385	1.8
11.	Cement	3,941	1.3
12.	Paper and paper products	4,816	1.6
13.	Rubber products	2,016	0.7
14.	Others	38,615	12.6

Life Insurance Corporation of India: The total investments of Insurance Companies in India at the end of December 1955 amounted to Rs. 58.90 crores. This was before nationalization of Life Insurance in 1956. As of March 1970, the total investments of the Life Insurance Corporation of India amounted to Rs. 1,528.66 crores. This includes Rs. 14.40 crores, the share of its General Insurance Department. Investments in Stock Exchange securities, loans and contribution to the initial capital of Unit Trust of India was Rs. 1420.10 crores. Of this amount, nearly Rs. 238 crores were invested in the shares and debentures of financial institutions which in turn assist private industry and co-operative credit institutions. An amount of Rs. 234 crores was invested in the shares and debentures of joint stock companies and Rs 5.37 crores in a joint sector undertaking.

Within the limitations of availability of sound proposals and adequately remunerative existing scrips, Life Insurance Corporation has made a conscious attempt to diversify investments both by States and industries in such a manner as to favour the relatively underdeveloped States and new industries. Even to the extent that it has purchased securities of traditional industries, in the open market, it has released funds for investments elsewhere.

The Corporation has also taken considerable interest in underwriting fresh capital issues. From its establishment in September 1956 through June 1971, Life Insurance Corporation's underwriting of new issues valued at over Rs. 150 crores.

Underwriting of Private Sector Capital Issues: The total value of capital issues through prospectus by non-Government public limited companies was Rs. 45.1 crores in 1956. The proportion of issues underwritten by different financing institutions rose from 5 per cent in 1956 to as much as 71.3 per cent in 1969-70. While the non-institutional sources in brokers and investment companies took up between 13 and 18 per cent

TABLE LV

State-wise Distribution of Life Insurance Corporation Investments as on 31-3-70

Rs. in lakhs

Region and State		Total	%age of investment in the region to total investment in the region
1	2	3	4
1.	**Eastern Region**		
	(a) Assam	24,12.51	2.45
	(b) Bihar	61,47.33	6.25
	(c) Orissa	46,75.50	4.76
	(d) West Bengal	110,41.52	11.23
	Total	242,76.86	24.69
2.	**Northern Region**		
	(a) Delhi	8,09.74	0.82
	(b) Haryana	16,05.22	1.63
	(c) Himachal Pradesh	27.01	0.03
	(d) Jammu and Kashmir	1,66.36	0.17
	(e) Punjab	30,46.54	3.10
	(f) Rajasthan	40,13.27	4.08
	(g) Uttar Pradesh	68,66.97	6.99
	Total	165,35.11	16.82
3.	**Southern Region**		
	(a) Andhra Pradesh	70,41.03	7.16
	(b) Kerala	34,59.20	3.52
	(c) Karnataka	53,09.42	5.40
	(d) Pondicherry	9.07	0.01
	(e) Tamil Nadu	98,76.65	10.05
	Total	256,95.37	26.14
4.	**Western Region**		
	(a) Gujarat	89,75.12	9.13
	(b) Madhya Pradesh	35,69.32	3.63
	(c) Maharashtra	192,57.62	19.59
	Total	318,02.06	32.35
	Grand Total:	983,09.40	100.00

TABLE LVI

Sector-wise Distribution of Life Insurance Corporation Investments in India as on March 31, 1970

Rs. in lakhs

		Amount	%age of total amount
1.	Public Sector	10,45,26.16	73.6
2.	Co-operative Sector	1,35,50.61	9.5
3.	Joint Sector	5,36.60	0.4
4.	Private Sector	2,33,96.80	16.5
	Grand total	14,20,10.17	100.0

TABLE LVII

Distribution of the Investments (in Debentures, Preference Shares and Ordinary Shares) Among Various Industries and Among The States in which the Principal* Factories or Works of Various Companies and Co-operative Societies are Situated as at March 31 1970

Rs. in lakhs

Sl. No.	Industry	*Andhra Pradesh*	*Assam*	*Bihar*	*Delhi*	*Gujarat*	*Haryana*
		1	2	3	4	5	6
1.	Aluminium	—	—	—	—	—	—
2.	Banks	0.98	—	—	18.49	102.63	—
3.	Cement	59.43	—	70.84	—	128.41	—
4.	Coal	—	—	43.71	—	—	—
5.	Cotton Textiles	28.41	—	—	315.77	473.52	—
6.	Dyes, Chemicals & Pharmaceuticals	43.72	—	—	—	206.62	—
7.	Electricity	—	—	42.82	—	388.09	—
8.	Electrical Goods	—	—	226.30	25.85	25.56	—
9.	Engineering	37.07	—	566.93	83.84	80.65	27.50
10.	Food, Drink and Tobacco	27.62	—	—	20.10	5.87	—
11.	Insurance	1.35	—	—	—	0.19	—
12.	Investment Trust	—	—	—	—	—	—
13.	Iron and Steel	—	—	1,023.92	—	—	—
14.	Jute	5.31	—	0.11	—	—	—
15.	Managing Agents	—	—	—	—	—	—
16.	Matches	—	5.26	—	—	—	—
17.	Mining	—	—	55.29	—	0.86	—
18.	Mineral Oil	—	536.60	—	—	—	—
19.	Paper and Boards	60.61	—	9.75	—	19.70	—
20.	Plantations	—	44.20	—	—	—	—
21.	Railways	—	9.21	17.89	—	—	—
22.	Rubber Products	—	—	—	—	—	—
23.	Shipping and Transport	—	—	—	—	2.17	—
24.	Sugar and Breweries	54.36	—	64.45	—	—	—
25.	Textiles (other than Cotton)	—	—	—	—	22.16	—
26.	Vegetable oils	3.94	—	—	—	8.92	—
27.	Co-op. Housing Societies	—	—	—	—	—	—
28.	Miscellaneous	20.42	16.19	81.26	7.28	24.11	4.76
	Total:	3,43.22	611.46	2,203.27	471.33	1,489.46	32.26

TABLE LVII (Contd.)

Sl. No.	Industry	Himachal Pradesh	Kerala	Madhya Pradesh	Maharashtra	Karnataka	Orissa	Pondicherry
		7	8	9	10	11	12	13
1.	Aluminium	—	—	—	—	—	—	—
2.	Banks	—	—	—	4,47.62	19.21	—	—
3.	Cement	—	1.15	—	6,23.06	33.16	4.71	—
4.	Coal	—	—	18.42	—	—	2.04	—
5.	Cotton textiles	—	3.69	72.67	9,22.12	64.10	2.37	2.74
6.	Dyes, Chemicals & Pharmaceuticals	—	28.17	2.44	1,88.99	21.55	14.62	—
7.	Electricity	—	0.31	5.58	9,24.74	1.78	0.01	—
8.	Electrical goods	—	1,48.93	7.12	2,46.90	58.15	—	—
9.	Engineering	—	7.77	44.66	12,60.03	35.56	60.83	—
10.	Food, Drink and Tobacco	—	—	—	13.51	0.30	—	—
11.	Insurance	—	—	—	2,16.74	0.04	—	—
12.	Investment Trust	—	—	—	2,68.72	0.12	—	—
13.	Iron & steel	—	—	—	—	—	—	—
14.	Jute	—	—	—	—	—	—	—
15.	Managing Agents	—	—	—	1.24	—	—	—
16.	Matches	—	—	—	79.65	—	—	—
17.	Mining	—	—	4.39	3.08	9.75	11.27	—
18.	Mineral Oil	—	46.00	—	5.62	—	—	—
19	Paper and Boards	—	—	—	1,27.50	60.38	1,54.69	—
20.	Plantations	—	52.38	—	—	46.89	—	—
21.	Railways	—	—	—	15.57	—	—	—
22.	Rubber Products	—	24.36	—	18.03	—	—	—
23.	Shipping and Transport	—	—	—	43.34	—	—	—
24.	Sugar and breweries	18.49	8.53	8.68	2,25.15	40.50	6.18	—
25.	Textiles (other than Cotton)	—	40.53	3,04.36	2,34.80	—	—	—
26.	Vegetable Oils	—	—	—	2,29.36	—	—	—
27.	Co-operative Housing Societies	—	—	—	23.54	—	—	—
28.	Miscellaneous	—	29.31	39.70	1,65.59	1.58	35.26	—
	Total:	18.49	3,91.13	5,08.02	62,84.90	3,93.07	2,91.98	2.74

TABLE LVII (Contd.)

Sl. No.	Industry	Punjab	Rajasthan	Tamil Nadu	Uttar Pradesh	West Bengal	Foreign	Total
		14	15	16	17	18	19	20
1.	Aluminium	—	—	32.31	1,36.57	7,61.77	—	9,30.65
2.	Banks	—	—	35.29	—	1,11.06	—	** 7,35.28
3.	Cement	—	42.11	1,44.84	—	—	—	11,07.71
4.	Coal	—	—	—	—	3,19.20	—	3,83.37
5.	Cotton textiles	14.50	8.08	1,83.12	1,14.39	62.04	0.44	22,67.96
6.	Dyes, Chemicals & Pharmaceuticals	—	—	1,12.96	47.13	1,06.45	—	7,72.65
7.	Electricity	—	—	17.54	31.93	3,38.22	—	17,51.02
8.	Electrical Goods	—	22.13	40.94	5.29	2,45.34	—	10,52.51
9.	Engineering	—	13.99	4,50.33	27.49	14,92.16	—	41,88.81
10.	Food, Drink and Tobacco	—	—	0.88	—	1,84.17	—	2,52.45
11.	Insurance	—	—	1.48	—	10.30	—	2,30.10
12.	Investment Trust	—	—	4.03	—	22.67	—	2,95.54
13.	Iron and Steel	—	—	—	—	7,11.38	—	17,35.30
14.	Jute	—	—	—	3.21	5,52.52	—	5,61.15
15.	Managing Agents	—	—	7.49	0.92	1,31.10	—	1,40.75
16.	Matches	—	—	—	—	—	—	84.91
17.	Mining	—	—	—	—	0.51	—	85.15
18.	Mineral Oil	—	—	—	—	32.02	—	6,20.24
19.	Paper and Boards	0.52	—	28.68	45.08	3,11.56	—	8,18.47
20.	Plantations	—	—	55.51	0.21	80.11	1.82	2,81.12
21.	Railways	—	—	—	9.37	18.61	—	70.65
22.	Rubber Products	—	—	2.41	—	4,45.57	—	4,90.37
23.	Shipping and Transport	—	—	—	—	39.90	—	85.41
24.	Sugar and Breweries	0.04	—	1,35.74	1,58.86	8.22	—	7,29.20
25.	Textiles (other than Cotton)	15.04	4.50	30.84	-	0.71	—	6.52.94
26.	Vegetable Oils	—	—	0.10	—	0.75	—	2,43.07
27.	Co-operative Housing Societies	—	—	—	—	—	—	23.54
28.	Miscellaneous	—	2.28	2,02.42	1,31.33	4,37.47	—	11,98.96
	Total	30.10	93.09	14,86.91	7,11.78	64,23.81	2.26	2,17,89.28

Note: *Where a company has more than one Factory situated in different States and none of them can be clearly defined as the Principal Factory, the investment is shown in the State in which the Registered Office of the Company is situated.

** Includes Rs 7,31.85 lakhs being the Book Value of investments in the 14 Scheduled Banks whose undertakings were acquired by the Government of India.

TABLE LVIII

Life Insurance Corporation Investments in Private Sector by Industries

(Rs. in lakhs)

	Industry	*December* 31, 1957	*March* 31, 1970
1.	Aluminium	n.a.	9,30.65
2.	Banks	2,63	7,35.28
3.	Cement	3,66	11,07.71
4.	Chemicals, Pharma & Dyes	1,20	7,72.65
5.	Coal	1,92	3,83.37
6.	Cotton Textiles	6,87	22,67.96
7.	Electricity	8,29	17,51.02
8.	Electrical Goods	n.a.	10,52.51
9.	Engineering	7,14	41,88.81
10.	Food, Drink & Tobacco	n.a.	2,52.45
11.	Sugar & Breweries	1,43	7,29.20
12.	Insurance	1,36	2,30.10
13.	Investment Trusts	50	2,95.54
14.	Iron & Steel	5,48	17,35.30
15.	Jute	4,15	5,61.15
16.	Managing Agents	1,68	1,40.75
17.	Matches	n.a.	84.91
18.	Mining	34	85.15
19.	Mineral Oil	n.a.	6,20.24
20.	Paper and Boards	3,09	8,18.47
21.	Plantations	1,35	2,81.12
22.	Railways	71	70.65
23.	Rubber Products	n.a.	4,90.37
24.	Shipping & Transport	1,21	85.41
25.	Textiles (other than cotton & jute)	.89	6,52.94
26.	Vegetable Oils	.33	2,43.07
27.	Miscellaneous	14,30	11,98.96
	Total	68,53	217,65.74

n.a. — Not available

of the underwritings during 1965-66 through 1969-70, the bulk of the balance was taken up by the Life Insurance Corporation, the Unit Trust of India, the Industrial Credit and Investment Corporation of India, commercial banks and the Industrial Finance Corporation of India in that order. As the largest underwriter in this category the Life Insurance Corporation's percentage has varied between 21 and 24. The Industrial Development Bank of India which went in for underwriting upto 15 per cent in 1965-66 has been tapering off in the next three years. Next to the Life Insurance Corporation the Unit Trust of India has entered the underwriting operation in a massive way. Its share after a modest start, has gone up to 20 per cent and above in 1968-69 and 1969-70.

The main point of note is that the amounts underwritten have tended to grow steadily and the institutional underwriters have increased in number and become stronger.

In the period between 1966 and 1970, the response of the general

public has not been adequate. During the four year period response of the public reached a little over one-third of the total issue. In the next three years it has been less than 30 per cent and the institutions had to step in to make good the shortfall either as independent subscribers to the issue or in their capacity as underwriters.

TABLE LIX

Response of Public and Underwriters

Rs in crores

	1966-67	1967-68	1968-69	1969-70
1. Number of Companies	66	71	65	47
2. Total capital issues	36.36	60.14	43.35	43
3. Offered to the public	32.10	41.07	41.48	41.40
4. Subscribed by public	11.08	17.35	9.69	11.78
5. Underwritten	30.84	40.55	40.40	39.89
6. Subscribed by underwriters	20.81	23.66	31.69	29.53

TABLE LX

Underwriting Operations 1956 And 1966-70

Rs. in crores

	1956	1966-67	1967-68	1968-69	1969-70
Total amount underwritten Underwriters	2.1	30.84	40.56	40.40	39.89
1. Life Insurance Corporation	0.2	6.63 (21.5)	9.67 (23.9)	9.96 (24.7)	9.46 (23.7)
2. Industrial Development Bank of India	0.2	4.58 (15.0)	.62 (1.5)	1.43 (3.57)	2.03 (3.8)
3. Industrial Credit and Investment Corporation of India	0.8	4.45 (14.4)	5.34 (13.3)	5.87 (14.7)	4.90 (12.3)
4 Unit Trust of India	—	2.61 (8.4)	6.46 (16)	8.79 (21.7)	7.99 (20.0)
5. Industrial Finance Corporation	—	2.39 (7.7)	1.41 (3.47)	2.49 (6.2)	1.48 (3.8)
6. Banks	0.7	2.37 (7.7)	4.25 (10.5)	2.81 (6.9)	5.18 (13.0)
7. General Insurance Coys	—	1.91 (6.2)	3.43 (8.4)	2.16 (5.3)	2.25 (5.6)
8. State Financial Corporations and State Industrial Development Corporations	5.2	2.07 (6.6)	1.74 (4.37)	1.48 (0.7)	1.12 (2.8)
9. Industrial Investment Trust	—	0.5 (0.2)	0.2	0.2	—
10. Investment Corporation of India	—	0.15 (0.5)	3.5 (0.8)	0.9 (0.2)	2.0 (0.5)
11. Promoters and Directors	—	0.3 (0.1)	15.0 (10.3)	—	—
12. Others — Brokers etc.	0.4	3.57 (11.7)	7.13 (17.1)	5.30 (13.3)	5.29 (13.37)

Note: Figures in brackets denote percentage of total.

VIII. Financial Institutions

Beginning with the Industrial Finance Corporation of India (I.F.C.) in 1948, a number of institutions have been set up to provide long and medium-term finance to private industry. Apart from I.F.C. (there are the Industrial Credit and Investment Corporation of India (I.C.I.C.I.), National Industrial Development Corporation (N.I.D.C.), National Small Industries Corporation (N.S.I.C.), Refinance Corporation for Industry, State Financial Corporations (S.F.Cs.), and State Industrial Development Corporations (S.I.D.Cs.). In July 1964, two new institutions came into existence: the Industrial Development Bank of India (I.D.B.I.) and the Unit Trust of India. The functions of some of these institutions overlap but, by and large, they operate in different fields or owe their separate existence to certain unique background factors.

The Industrial Finance Corporation is a statutory corporation which gives mainly long-term mortgage-type rupee loans to large and medium sized concerns, organized as public limited companies or co-operatives. Most of its loans have gone to established industries like sugar, paper, cotton textiles, chemicals, and metal products. For some years now, it has also gone to some extent into foreign currency loans, guarantee of deferred payments and loans, and underwriting of public issues of share capital.

The Industrial Credit and Investment Corporation of India (I.C.I.C.I.) was registered as a joint stock company in January 1955, sponsored first by the U.S. Aid Mission in India and later by the World Bank. The Government has no participation in its share capital but has advanced Rs. 31.41 crores as loans, of which Rs. 7.5 crores is interest-free and ranks after equity and all other liabilities for repayment. U.S., U.K., and West German interests have participation in its share capital. Its principal business is to give foreign currency loans and underwrite public issues. It also gives mortgage-type rupee loans and subscribes directly to share capital. Most of its assistance has gone to new industries like ferrous metal products, chemicals, machinery manufacture, and electrical equipment.

Both I.F.C. and I.C.I.C.I are national development banks, and though their spheres of activity have increasingly overlapped of late, but because of the vast territory open to both, on the whole, there has grown more co-ordination than competition. The two have co-operated, along with other financing agencies, in joint underwriting and loan operations and in general consultation.

The original reason for setting up I.C.I.C.I. seven years after the establishment of I.F.C. was that the U.S. aid mission and the World Bank wanted to sponsor and finance a private non-statutory body which would among other things, transact business which I.F.C. then could not take up under

TABLE LXI

I.F.C. And I.C.I.C.I. — Capital

Rs. in lakhs

	I.F.C. as on June 30, 1971	*I.C.I.C.I. as on Dec.* 31, 1966
1. I.D.B.I.	4,18	—
2. Scheduled Banks	1,70	87.04
3. Insurance Companies	1,80	3.98
4. Life Insurance Corp. and UTI	—	1,47.56
5. Cooperative Banks	67	—
6. Indian Companies	—	2,09.13
7. Foreign Controlled Coys.	—	5.29
8. Foreign shareholders	—	1,89.15
9. Others	—	1,07.85
Total:	8,35	*7,50.00

I.F.C. and I.C.I.C.I. — Resources

	As on June 30, 1971	*As on Dec.* 31, 1970
1. Paid up share capital	8,35	7,50
2. Resources	14,24	8,23
3. Investments and Repayment of rupee loans	73,47	11,00
4. Market borrowings	57,69	—
5. Govt. of India Loans	77,32	31,41
6. Loans from RBI/IDBI	1,24	12,30
7. Foreign credits	35,47	1,73,41
Total:	2,67,78	2,43,85

*In view of the nationalization of 14 major banks and the take over of General Insurance Companies pending nationalization, the character of the shareholdings has undergone a change although the character of I.C.I.C.I. as institution remains unchanged.

TABLE LXII

I.F.C. and I.C.I.C.I. — Operations

Form of Assistance	*I.F.C. through June* 30, 1971			*I.C.I.C.I. through Dec.* 31, 1970		
	No.	*Net amount sanctioned* (Rs. Cr.)	*Amount disbursed* (Rs. Cr.)	*No.*	*Net amount sanctioned* (Rs. Cr.)	*Amount disbursed* (Rs. Cr.)
1. Loans:						
Rupee	684	2,38.67	209.61	161	59.69	42.91
Foreign currency	157	43.58	35.47	442	1,74.39	1,20.63
Sub-total	841	2,82.25	2,45.08	603	2,34.08	1,63.54
2. Underwriting:						
Equity	130	11.22	7.79	138	18.83	8.80
Preference	103	7.06	5.20	100	11.74	6.53
Debentures	21	10.73	7.58	53	23.47	15.11
Sub-total	254	29.01	20 57	291	54.04	30.44
3. Direct subscription:						
Equity	13	0.54	0 26	66	4.91	4.71
Preference	4	0.12	0.05	12	1.96	.94
Debentures	1	1.82	1.82	3	1.70	1.50
Sub-total	18	2.48	2.13	81	7.57	7.15
4. Deferred Payment:						
Guarantees	42	28.46	27.65	—	—	—
5. Guarantees for foreign loans	5	23.47	23.33	—	—	—
Grand Total:	1,160	3,65.67	3,18.76	975	2,95.69	201.13

(a) 70 cases cover equity preference or debentures.
(b) 7 cases cover both equity and preference.
(c) Sanctions in respect of equity and preference shares in 75 cases have been accounted for separately

TABLE LXIII

I.F.C. and I.C.I.C.I. — Distribution of Assistance by States

Rs. in lakhs

No.	State/Territory	I.F.C. through June 30, 1971 No. of Units	Net sanction	%age of total	I.C.I.C.I. through December 1970 No. of Units	Net sanction	%age of total
1.	Andhra Pradesh	32	25,85.06	7.1	14	10,82	3.7
2.	Assam	6	6,51.79	1.8	3	1,90	0.6
3.	Bihar	25	22,22.61	6.1	18	20,14	6.8
4.	Gujarat	42	26,17.91	7.2	92	36,23	12.3
5.	Haryana	22	9,91.09	2.7	24	8,38	2.8
6.	Kerala	16	12,33.92	3.4	15	3,99	1.3
7.	Madhya Pradesh	15	9,20.89	2.5	8	5,52	1.9
8.	Maharashtra	113	73,51.23	20.1	224	1,08,51	36.7
9.	Meghalaya	1	95.00	0.3	—	—	—
10.	Mysore	37	22,15.01	6.1	30	15,49	5.2
11.	Orissa	16	11,15.17	3.0	9	6,52	2.2
12.	Punjab	11	6,70.16	1 8	3	23	0.1
13.	Rajasthan	13	16,03.49	4.4	6	5,45	1.8
14.	Tamil Nadu	61	49,50.37	13.5	60	30,02	10.4
15.	Uttar Pradesh	39	29,00.09	7.9	24	12,88	4.4
16.	West Bengal	71	39,97.70	10.9	73	24,80	8.4
17.	Delhi	4	2,99.67	0.8			
18.	Andaman & Nicobar Islands	1	11.00	—	10	4,21	1.4
19.	Goa	1	75.00	0.2	—	—	—
20.	Pondicherry	1	60.16	0.2	—	—	—
	Total:	527	3,65,67.32	100.0	613	2,95,09	100.0

TABLE LXIV

I.F.C. and I.C.I.C.I. — Distribution of Assistance by Industries

	Industry	I.F.C. through June 30, 1971 Assistance sanctioned (net) (Rs. Cr.)	% of total	I.C.I.C.I. through Dec. 31, 1970 Assistance sanctioned (net) (Rs. Cr.)	% of total
1.	Sugar	72.69	19.9	2.69	0.9
2.	Paper, pulp & paper products	23.13	6.3	14.51	4.9
3.	Textiles	46.73	12.7	20.17	6.8
4.	Rayon	11.31	3.1	—	—
5.	Chemicals and petro chemicals	31.91	8.8	64.39	21.8
6.	Fertilisers	22.64	6.2	—	—
7.	Cement	18.90	5 2	13.09	4.4
8.	Ceramics & glass	7.66	2.1	8.12	2.7
9.	Electrical equipment	13.08	3.6	24.49	8 3
10.	Automobiles & cycles	12.47	3.4	17.47	5.9
11.	Machinery	12.08	3.3	29.59	10.0
12.	Rubber products	10.87	3.0	9.88	3.3
13.	Iron & Steel	8.10	2.2	—	—
14.	Hotels	3.68	1.0	—	—
15.	Non-Ferrous Metals	31.51	8.6	17.57	5.9
16	Shipping	—	—	—	—
17.	Mining & Oil	4.82	1.2	—	—
18.	Metal Products	24.04	6.6	41.25	14.0
19.	Others	10.06	2.8	11.4	3.9
	Total:	365.68	100.0	274.62	92.8

its charter. For some time thereafter, the two operated in different fields. Over the last several years, however, private business has expanded and diversified so rapidly and foreign exchange has become so scarce that both I.F.C. and I.C.I.C.I. have had to widen their spheres of activity, thus resulting in some functional overlap. The financial needs of private industry are, however, so large and diverse that there is room for more than one development bank. Moreover, each of the institutions has carved out a place for itself among various industrial and regional groups.

With regard to ownership, I.F.C. is in the public sector and I.C.I.C.I. in the private sector. The latter, however, has also received considerable Government assistance in the form of loans and the Life Insurance Corporation is its largest single shareholder. I.C.I.C.I. has much larger foreign currency resources both absolutely and in relation to total resources, though this difference is narrowing down somewhat as I.F.C. acquires more foreign currency resources. Because it is seven years older, because of its public obligations (*e.g.*, assistance for cooperative sugar mills), and because it gives individually larger loans on the overage, I.F.C. has done much more business than I.C.I.C.I.

Policy Changes: Following the recommendations of the Industrial Licences Policy Inquiry Committee, the Central Government, in January 1970, made certain changes in policy in regard to assistance from public financial institutions. Having accepted the joint sector concept (a recommendation of the Inquiry Committee), Government decided that there should be a greater degree of participation by the institutions in management, particularly at policy levels, in the case of major projects involving substantial assistance.

Government also decided that public financial institutions should as part of their arrangement regarding future loans exercise the option for converting loans and debentures into equity, either wholly or partly. In respect of current loans or debentures, financial institutions should have discretion to negotiate conversion in cases of default. In all cases where such conversion has been effected, there should be provision for nomination of Directors on the Boards of the assisted concerns. Guidelines have accordingly been given by Government to the all-India financial institutions namely: the Industrial Development Bank of India, the Industrial Credit and Investment Corporation of India, the Industrial Finance Corporation of India, the Life Insurance Corporation of India and the Unit Trust of India.

In terms of these guidelines, it has become obligatory on those institutions normally to affiliate a condition for option to convert a part of the loan into equity in all cases where the aggregate financial assistance exceeds Rs. 50 lakhs. In cases where the aggregate exceeds Rs. 25 lakhs but does not exceed Rs. 50 lakhs, the condition for the inclusion of the

convertibility clause has been left to the discretion of the financial institutions.

The convertibility clause will not apply to sub-loans in foreign currency granted by Indian financial institutions out of foreign currency lines of credit made available directly to them by foreign institutions. But the clause will apply to all loan agreements/debentures issued covering rupee assistance from the financial institutions to industrial concerns to enable them to purchase foreign exchange from foreign lines of credit operated by the Government of India or from any other source abroad.

In settling the terms of conversion, consideration will be given to factors such as the nature and importance of the industry, the likely gestation period of the project, the debt-equity gearing, the projected profit potential, prospects of expansion, etc. In respect of existing companies with resource created out of past profits, in fixing the issue price of the share, consideration will be given to factors such as the market value of the share, break-up value, dividend record, current and projected profitability, etc. I.F.C. assistance is, regionally, more dispersed than that of I.C.I.C.I, partly in pursuance of a Government directive to it. The distribution of their assistance by industries indicates that both have a diversified portfolio, though I.F.C. has a larger concentration ofi nterest in lighter industries.

Industrial Finance Corporation of India: The Industrial Finance Corporation is the largest and the oldest long-term industrial financing institution in India. It was set up in 1948 by an Act of Parliament "for the purpose of making medium and long-term credits more readily available to industrial concerns in India, particularly in circumstances where normal banking accommodation is inappropriate or recourse to capital issue methods is impracticable." Its charter permits I.F.C. to finance public limited companies and co-operative societies which are registered in India and are engaged in the manufacture, preservation or processing of goods, shipping, mining, hotels, and generation or distribution of power and gas. Originally it was expected to finance manufacturing and processing enterprises only. Under a Central Government decision in 1970, public sector undertakings, which are set up as public limited companies, can also seek assistance form I.F.C. on the same basis as the private sector. Final assistance on concessional terms, is available for setting up industrial projects in certain industrially less developed areas notified by the Central Government. I.F.C. finances not only new industrial projects but also renovation, modernization, expansion or diversification of existing enterprises only. The Corporation is required to "act on business principles due regard being paid to the interest of industry, commerce and the general public."

I.F.C. extends assistance to borrowers in various forms though, for a

long time, it practically confined itself to first mortgage loans repayable within a maximum period of 25 years (maturities generally being 12 to 15 years), normally upto one-half of the value of net fixed assets and/or secured by Government guarantees. It lends upto 65 per cent of the value of fixed assets in the case of co-operative industrial concerns and upto 60 to 65 per cent in other cases where the foreign exchange component is more than 60 per cent of total capital expenditure. In many cases, it has also insisted upon an unlimited guarantee from managing agents or key directors, but since 1964 this condition has been generally relaxed. Lately, it has accepted bank guarantees in lieu of mortgages. In addition, it could underwrite capital issues but took a number of years to enter this field. A series of amendments to its charter since 1957 have enabled it to guarantee deferred payments to suppliers and loans due from any eligible concern to a financing agency within or outside India, to convert loans into equity or invest in equity, and to disburse foreign currency loans obtained from any foreign or Indian financial institution.

Projects to be eligible for assistance must be part of the Five Year Plans and should have obtained (i) the necessary licence under the Industries Development and Regulation Act 1951; (ii) consent from the Controller of Capital Issues for issue of shares, debentures and mortgage loans; and (iii) preferably preliminary clearance from the Capital Goods Committee of the Government when the import of equipment is involved. Besides, the projects should be commercially viable, have sound management, and the sponsors themselves must provide a reasonable proportion of the finance needed, with a sound debt-equity ratio.

Loans are given for the purchase of new machinery, renovation or replacement of old machinery, construction of factory buildings, and purchase of land for factory sites. Finance is not available for purchase of raw materials. Inventory is not accepted as security. Loans for working capital or repayment of existing liabilities are given only in exceptional cases. The rate of interest on all rupee loans was 7 per cent per annum, with a rebate of 0.5 per cent for punctual servicing. Since July 1962, it was progressively raised and from December 1970, the rate has stood at 9% subject to ½% rebate for punctual payment of principal and interest. Concessional rates are applicable to loans to small or medium size projects in areas notified by the Central Government as industrially less developed. The net rate of interest on foreign currency loans is slightly higher at 9½% with the ½% rebate.

Ownership: The Corporation has an authorized share capital of Rs. 10 crores of which Rs. 8.34 crores is paid up, comprising 20,000 shares of Rs. 5,000 each. The Government has guaranteed the repayment of the principal of share capital in the event of winding up the Corporation,

and also a dividend of 2.25 per cent per year on all the 10,000 shares issued till 1961, and 4 per cent per year on the additional share capital of 3.34 crores raised since then. Consequently, the shares are approved securities for trusts, banks and insurance companies. In 1953 and since 1957, the Corporation has paid dividends out of its own profits. The accumulated liability to the Government on account of the dividend subvention, *i.e.*, the difference between the dividend guaranteed by the Government and the profit available for distribution, in the earlier years was extinguished in June 1962.

The broad pattern of ownership of share capital is laid down by charter. Ownership is not open to individuals. Since June 1964, the pattern of ownership changed. I.D.B.I. together with the entire holdings of the Government and the Reserve Bank, has 50 per cent of total share capital.

At its inception, the intention was that the Government, directly and through the Reserve Bank, would have a minority participation in share capital. The subsequent nationalization of life insurance companies, and the Imperial Bank as well as the nationalization of 14 major banks in 1969 and the recent take over of General Insurance Companies (pending their nationalization) has given an overwhelming majority to the Government and other public sector entities. The management of the Corporation is autonomous, subject to certain safeguards and restrictions and policy directives from the Government, which powers have since been transferred to I.D.B.I.

Management: Management is vested in a Board of Directors, consisting of a full-time Chairman and four other directors appointed by the Industrial Development Bank, two directors nominated by the Central Government and two directors elected each by Scheduled Banks, insurance concerns, trusts etc., and co-operative banks making 12 directors in all. Initially, the Corporation had a leading industrialist as part-time Chairman, and a full-time Managing Director, who had long experience in banking. The change to the present set-up was made in 1955, to implement one of the recommendations of a committee of enquiry appointed by Parliament in 1952. Since 1955, the three successive Chairmen have been senior civil servants on loan from the Government. In 1970, the senior most officer of the Corporation was appointed Chairman, the first such appointment since the Corporation was set up. The Board is required to meet at least once in three months and actually meets once a month. In an emergency, such as an urgent need for additional assistance or early disbursement of a loan already approved or steps necessary to protect the Corporation's interest, the Chairman can exercise all the powers of the Board (this contingency arose only on a few occasions). The Corporation has six advisory

committees, one each for textiles, engineering, sugar, chemicals, jute and miscellaneous groups of industries, which help in appraising projects. The committees include persons who have specialized knowledge and experience of particular industries, and are drawn from the Government and the private sector.

I.F.C. has five branch offices and one sub-office in addition to the head office at New Delhi. Its accounts are audited by the Comptroller and Auditor General, besides two commercial firms of auditors elected by non-Government shareholders.

Government Control: Apart from the nomination of two directors, the Government had power under the original Act to give directives on questions of policy but was not to interfere in routine management. From 1948 through 1959, seven formal directives were received by the Corporation. In addition, it agreed in 1956 to a suggestion from the Government to extend special assistance to co-operative processing factories. Such assistance, almost wholly to co-operative sugar mills, account for nearly one fourth of its total net sanctions. The directives required the Corporation, among other things, to assist as far as practicable in the industrial development of backward areas, to require borrowing concerns to seek I.F.C. approval before declaring dividends above a certain limit, to keep generally a minimum margin of 50 per cent against fixed assets in making loans, to inform the Government regarding loans exceeding Rs. 50 lakhs to disclose the names of all borrowers, to minimize the time-lag between approval and disbursement of loans, and to seek prior Government approval for more than three loans to a single party or where the aggregate of loans to the party exceeds Rs. 1 crore and to "refer to the Ministry of Finance for orders" all cases where the total loans granted to "industrial concerns which are owned, managed or controlled by a closely connected group of industrialists exceed" Rs. 1 crore. The power to issue directives is now vested in I.D.B., and the limit of loans to individual concerns or groups without prior Government permission has been raised to Rs. 2 crores.

Apart from these policy directives, the general mechanism of planning and the presence of official representatives on the Board are conducive to co-ordination with Government policy. The Corporation makes use of Governmental machinery for the appraisal of projects but, in addition, makes objectives and detailed enquiries on its own into the merits of each proposal. There is no record of political interference in its working. As a matter of public obligation, it has played an important role in the development of co-operative sugar factories.

Operations: The Corporation does not give rupee loans of less than Rs. 10 lakhs. This field is left by convention and agreement to State

financial corporations. There is no upper limit on loans but, as always stated, rupee loans exceeding Rs. 1 crore required prior approval of the Government till 1964; till 1961, such loans required a Government guarantee of repayment of principal in addition to other security. For large projects, I.F.C. can and does arrange for participation by other financial institutions such as I.C.I.C.I., the Life Insurance Corporation, banks, etc., and foreign agencies such as the Commonwealth Development Finance Company of the U.K.

From 1948 through June 1971, I.F.C. obligated assistance aggregating over Rs. 365 crores, disbursed nearly Rs. 319 crores. The total amount written off from portfolio, till 1956-57 amounted to Rs. 50 lakhs and

TABLE LXV

I.F.C. Assistance — July 1948 through June 1971

(Rs. in crores)

	No. of applications	*Net sanctions*	*Dis-bursed*	*Amount outstanding*
1. Loans:				
—Rupees	684	238.67	209.61	133.32
—Foreign currency	157	43.58	35.47	26.09
Total:	841	282.25	245.08	159.41
2. Underwritings:				
—Equity	130	11.22	7.79	6.64
—Preference	103	7.06	5.20	4.24
—Debentures	21	10.73	7.58	4.73
Total:	254(a)	29.01	20.57	15.61
3. Direct Subscriptions:				
—Equity	13	0.54	0.26	0.75(b)
—Preference	4	0.12	0.05	0.29(b)
—Debentures	1	1.82	1.82	1.37
Total:	18	2.48	2.13	2.41
Total 1 to 3	1,113	313.74	267.78	177.43
4. Guarantees for deferred payments:	42	28.46	27.65(c)	7.05
5. Guarantees for loans from foreign financial institutions	5	23.47	23.33(c)	13.65
Total 1 to 5	1,160	365.67	318.76	198.13

(a) Sanctions in respect of equity and preference shares in 75 cases have not been accounted for in this table.

(b) Includes Rs. 0.67 crore being part of outstanding loans of 4 companies converted into shares and Rs. 0.06 crore of convertible debentures of another concern converted into equity shares.

(c) Guarantees actually issued.

since then it has been only Rs. 8 lakhs upto 1971. As a measure of prudence, however, the Corporation has so far set apart Rs. 1.54 crores

TABLE LXVII

I.F.C. — Net Financial Assistance Sanctioned and Disbursed Year-Wise from July 1, 1948 to June 30, 1971

(Rupees in crores)

Year ended June 30	*Net financial assistance sanctioned*				*Amount disbursed*			
	Loans	*Deferred Payments Guarantees/ Foreign Loans*	*Under-writings*	*Total*	*Loans*	*Deferred Payments Guarantees/ Foreign Loans*	*Under-writings*	*Total*
1	2	3	4	5	6	7	8	9
Prior To First Plan								
1949	3.25	—	—	3.25	1.33	—	—	1.33
1950	2.90	—	—	2.90	2.08	—	—	2.08
1951	1.98	—	—	1.98	2.38	—	—	2.38
Total	8.13	—	—	8.13	5.79	—	—	5.79
First Plan								
1952	3.20	—	—	3.20	1.78	—	—	1.78
1953	0.53	—	—	0.53	2.50	—	—	2.50
1954	4.10	—	—	4.10	2.82	—	—	2.82
1955	5.13	—	—	5.13	1.64	—	—	1.64
1956	14.06	—	—	14.06	2.20	—	—	2.20
Total	27.02	—	—	27.02	10.94	—	—	10.94
Second Plan								
1957	9.15	—	—	9.15	9.78	—	—	9.78
1958	5.93	1.82	0.75	8.50	8.33	—	—	8.33
1959	2.77	0.27	0.87	3.91	7.48	—	0.66	8.14
1960	12.62	6.06	0.10	18.78	8.41	2.09	0.17	10.67
1961	18.58	8.29	1.84	28.71	6.62	13.02	0.48	20.12
Total	49.05	16.44	3.56	69.05	40.62	15.11	1.31	57.04
Third Plan								
1962	19.05	0.32	0.73	20.10	10.79	0.44	0.24	11.47
1963	21.15	8.88	*4.99	35.02	14.11	4.33	*3.99	22.43
1964	25.11	7.74	4.85	37.70	16.03	3.89	1.96	21.88
1965	19.61	3.92	3.55	27.08	19.79	14.35	3.66	37.80
1966	21.60	1.35	3.96	26.91	23.99	2.17	4.48	30.64
Total	106.52	22.21	18.08	146.81	84.71	25.18	14.33	124.22
Annual Plans								
1967	12.35	4.00	1.87	18.22	29.52	5.64	2.90	38.06
1968	15.86	0.85	1.48	18.19	23.35	2.61	1.06	27.02
1969	23.93	0.40	2.42	26.75	15.03	0.28	1.68	16.99
Total	52.14	5.25	5.77	63.16	67.90	8.53	5.64	82.07
Fourth Plan								
1970	12.46	0.29	1.19	13.94	16.86	0.34	0.85	18.05
1971	30.97	0.42	3.80	35.19	16.28	0.20	0.87	17.35
Total	43.43	0.71	4.99	49.13	33.14	0.54	1.72	35.40
Grand Total	282.25	51.93	31.49	365.67	245.08	50.98	22.70	318.76

*Includes direct subscription of Rs. 2.48 crores.

as revenue for doubtful debts. In 1970-71, administrative expenses came to only 3.5 per cent of gross income. Total net assistance sanctioned upto June 30, 1971 amounted to Rs. 365.67 crores covering in all 1,160 applications and 527 industrial projects. Disbursements added upto Rs. 318.76 crores of which Rs. 267.78 crores were in cash. The outstandings stood at Rs. 198.13 crores.

The total disbursement of Rs. 267.78 crores was financed as follows:

TABLE LXVIII

Sources of I.F.C. Finance July, 1948 to June, 1971

(Rs. in crores)

1.	Paid up share capital	8.35
2.	Reserves	14.24
3.	Repayments of loans, etc.	73.47
4.	Loans from Government	77.32
5.	Loans from Reserve Bank of India	1.24
6.	Foreign credits	35.47
7.	Bonds	57.69
	Total:	267.78

Repayment of Bond issues, principal and interest are guaranteed by the Government of India. The facility of loans from the Government as and when resources are headed has enabled the Corporation to minimize idle cash. Such drawing facilities would, apart from P.L. 480 funds, now be available from I.D.B.I. and not Government. In addition, it has a short-term overdraft arrangement of upto Rs. 3 crores at the Reserve Bank.

Under its charter, I.F.C. can borrow in rupees and incur contingent liabilities upto ten times its paid-up share capital and free reserves, and, in addition, raise long-term deposits of upto Rs. 10 crores, which it has not exploited so far. Foreign currency borrowings are outside the above mentioned ceiling but require prior Government approval.

Foreign Currency Loans: As the only institutional lender of long-term industrial finance till the setting up of new agencies after 1954, I.F.C. realized the need for a foreign currency loan soon after it was established. It approached the World Bank several times without success.

In August 1951, long before the foreign exchange position deteriorated, I.F.C. approached I.B.R.D. for assistance. The Bank sent a Mission in May 1952 to make a detailed study of the Corporation's working. The seventh annual report of I.B.R.D. (1951) stated that "In May 1952, Bank representatives carried on discussions of possible assistance to the Industrial Finance Corporation, a private institution for providing medium and long-term credit to industry. It is expected that negotia-

tions for a loan to the Corporation will begin soon." Most of the suggestions made by the Mission to improve its operations were accepted. Thereafter, I.B.R.D. agreed to open negotiations for a loan of $8 million. In July 1952, the terms and conditions of the loan were finalized in Washington. Subsequently, the Corporation submitted 16 projects requiring foreign exchange for scrutiny and approval. At the end of 1952, the I.F.C. Act was amended in accordance with the I.B.R.D.'s suggestions. During the passage of the amending bill in Parliament, some members demanded an enquiry into the working of I.F.C. The Government and the World Bank thereupon agreed to defer the loan till after an investigation into the Corporation's affairs. In September 1955, a number of changes were made in the Corporation's charter, and a full-time Chairman was appointed. The World Bank had, in the meanwhile, actively sponsored the setting up of I.C.I.C.I. I.F.C.'s application was renewed in 1956 and negotiations were re-opened in March 1957. The prospect of securing a credit of $10 million (against $60 million requested) appeared bright at one stage but later (in 1957 or 1958) the negotiations faded out when I.B.R.D. indicated its intention to channelize its lending to the private sector exclusively through I.C.I.C.I.

In 1961, I.F.C. renewed its efforts to secure an I.B.R.D. loan but with no success. I.B.R.D. took the position that it could not finance two development banks in one country.

Failing I.B.R.D., I.F.C. turned to the U.S. Development Loan Fund, the only other foreign exchange lender at the time. Negotiations in 1960 resulted in an agreement being signed for a $10 million loan. The loan requires the Government to be guarantor and primary obligator: it carries interest at 5 per cent per annum, and is repayable *in rupees* over 15 years.

The U.S. Agency for International Development successor to D.L.F., granted two times of credit aggregating $26.88 million in 1961 and 1964.

TABLE LXIX

I.F.C. Foreign Currency Loans Sanctioned upto June, 1971

Currency	*No. of Sub-loans*	*Foreign Currency* (million)		*Rs. Lakhs*
U.S. Dollars	57	$	26.92	1,976.52
Pound Sterling	3	£	0.12	21.50
West German DM	103	DM	105.04	2,139.48
French Francs	11	Fr.	12.97	177.48
Total	174			4,314.98

Note: These sub-loans were in respect of 157 applications.

Kreditanstalt, the West German Reconstruction Loan Corporation, has, beginning from 1961, given the Corporation nine loans totalling DM

112.5 million, the last credit given in 1970. The initiation for the first loan came from West Germany which allocated DM 15 million to I.F.C., out of DM 100 million extended to India in 1961. DM credits are fully convertible for purchase in U.S.A., Britain, West European countries and Japan.

The French credit of 7,715 million finalized at the end of 1962, was mostly intended for the import of capital of goods from France. A British loan of £1 million was secured in 1970 under the U.K. India Capital Investment loan, for the import of capital goods from U.K.

Industrial Credit and Investment Corporation of India: The Industrial Credit and Investment Corporation of India was registered as a public limited company in 1955. The idea of setting up a private development bank originated with the U.S. aid mission which wanted to place P.L. 480 counterpart funds with a private agency but could not make much progress perhaps, due to the lukewarm attitude of the Government of India. The idea crystallized only when I.B.R.D. came into the picture in 1954. I.B.R.D. took over the informal steering committee of top Indian businessmen, which the U.S. aid mission had set up earlier. The committee was later transformed, with some additions, into the Board of Directors of the Corporation. The status of its members, sponsorship by I.B.R.D., and the selection of a British financial expert to head the management for some years, helped the new institution to secure participation in share capital from the Commonwealth Development Finance Company and British banks, as well as Bank of America, Westinghouse Corporation, Rockefellers, and Olin Mathieson.

Its memorandum states that the object of I.C.I.C.I. is to carry on the business of assisting industrial enterprises within the private sector of industry in India in general by assisting in the creation, expansion and modernization of such enterprises; (ii) encouraging and promoting the participation of private capital, both internal and external, in such enterprises; (iii) encouraging and promoting private industrial investments and the expansion of investment markets: and in particular by (a) providing finance in the form of long or medium-term loans or equity participations; (b) sponsoring and underwriting new issues of shares and securities; (c) guaranteeing loans from other private investment sources; (d) making funds available for reinvestment by revolving investments as rapidly as prudent, and (e) furnishing managerial, technical and administrative advice and assisting in obtaining managerial, technical and administrative services to Indian industry.

I.C.I.C.I. gives financial assistance to joint stock companies for the purchase of capital assets through (a) underwriting of public and private issues and offers of sale of industrial securities, (b) direct subscription to securities, (c) rupee loans upto one-half the net value of fixed assets

(secured by first mortgage)* repayable over periods upto 15 years, (d) foreign currency sub-loans out of I.B.R.D. and other foreign exchange credits to finance import of capital equipment and technical services, and (e) guarantee of loans made by other institutions, domestic or foreign.

Originally, there were no limits with respect to the amount of assistance to individual concerns, but later a lower limit was fixed at Rs. 500,000 and an upper limit at Rs. 1 crore; the latter limit applies to foreign currency sub-loans to a group of closely affiliated companies as well. I.C.I.C.I. can and does, nevertheless, help borrowers to get larger amounts by securing the co-operation of other financing institutions, both Indian and foreign. This co-operation is sought, in fact, even for modest amounts. In other words, I.C.I.C.I. is prepared to consider any proposal from anybody, provided the promoters make a substantial contribution to the total resources required, and the enterprise has or promises to obtain experienced management and expert technical personnel or advice. Sometimes, it appoints a director on the board of the borrower to safeguard its interests, but it does not seek participation in management; but this has since been modified under a directive from the Government of India referred to earlier in pursuance of the recommendation of the Licensing Policy Inquiry Committee.

I.C.I.C.I. turns over its investments to recoup liquidity and to promote wider distribution of ownership, but it does not give any commitment to the promoters regarding maintenance of market value or timing and amount of sales of holdings. The rate of interest at the end of 1964 was 7 per cent on rupee loans and 8 per cent on World Bank sub-loans. Besides, in many cases, it takes participation in profits, if the borrowing concern is narrowly owned, or retains the right to convert loans into equity if the borrower is widely owned. This policy has been extended to a few foreign currency sub-loans also.

Applications for all forms of assistance, including guarantees and underwriting, undergo a process of detailed and thorough appraisal which goes into the background of the company or promoters, basic soundness of the project, total cost and means of financing the entire project, market prospects, profitability, management, and Government consents.

As mentioned earlier, I.C.I.C.I. has a paid up share capital of Rs. 7.50 crores. Its authorized capital is Rs. 25 crores. It is the only long-term financing institution in India with foreign shareholders from the U.K., U.S.A. and West Germany.

The West German banks became shareholders by acquiring part of the U.S. interest. The capital subscriptions of the foreign shareholders

*This limit has been relaxed in favour of a few projects which had a high foreign exchange component, which provided a bank guarantee in addition to other security, and were expected to have satisfactory earning capacity.

were surrendered to the Reserve Bank and are not, therefore, available for foreign currency loans. Their rupee equivalent is part of the total resources available for assistance.

Management: The management of the Corporation is vested in a Board of Directors, which consists of a Chairman, a Deputy Chairman who is also Managing Director and 12 other directors, of whom one is a Government director and one each represents British and American shareholders. The Government is entitled to nominate a director so long as its loans remain outstanding. Another Government Director is elected. Since 1970 the L.I.C. represented on the Board. The I.C.I.C.I. has decided to have on its board a representative of the nationalized banks.

Nearly all the directors are well-known top industrialists and financiers. Some reshuffling was done in 1958, it is believed, at the initiative of I.B.R.D., to make the Board more broad-based. The Chairman does not have any emergency powers to approve assistance and can only authorize implementation of the Board's decisions.

In appraising various projects, particularly those in new industries like organic chemicals, the Corporation takes the advice of outside experts or advises borrowers to employ consultants, if they do not have a really satisfactory foreign technical collaboration. Routine projects are processed by the Corporation's own technical appraisal division. It has no advisory committee. Apart from the Head Office in Bombay, the I.C.I.C.I. has two regional offices in Calcutta and Madras.

The Government has no powers of control over the Corporation, apart from the right to nominate a director and to intervene in the event of a substantial redistribution of equity ownership and/or impairment of share capital. As with the several other development banks promoted by it, I.B.R.D. exercises a degree of supervision through periodical appraisals and suggestions for improvement. In 1958, I.B.R.D. loaned one of its top experts to advise and assist I.C.I.C.I. for some time.

Operations: From 1955 through December 1970, I.C.I.C.I. obligated assistance of Rs. 295.69 crores in 975 operations, disbursed Rs. 201.13 crores. The assistance has been fairly widely distributed geographically, but there is some concentration in a few states.

The largest single foreign currency loan of Rs. 1 crore was given with prior I.B.R.D. approval to Scindia Steam, the biggest shipping company in India, for the purchase of ships. Normally, I.C.I.C.I. seeks the participation of other institutions in giving a loan of this size, but made an exception in this case. Since then 14 companies have been given similar loans.

TABLE LXX

State-Wise Distribution of Financial Assistance since Inception upto Dec. 1970

State or Territory	*No. of Coys.*	*Net Sanctions*	*%age to total sanctions*
Andhra Pradesh	14	1,082	3.7
Assam	3	190	0.6
Bihar	18	2,014	6.8
Gujarat	92	3,623	12.3
Haryana	24	838	2.8
Kerala	15	399	1.3
Madhya Pradesh	8	552	1.9
Maharashtra	224	10,851	36.7
Karnataka	30	1,549	5.2
Orissa	9	652	2.2
Punjab	3	23	0.1
Rajasthan	6	545	1.8
Tamil Nadu	60	3,062	10.4
Uttar Pradesh	24	1,288	4.4
West Bengal	73	2,480	8.4
Union Territories	10	421	1.4
Total:	613	29,569	100.00

TABLE LXXI

I.C.I.C.I. Assistance from 1955 to 1970

(Rs. in crores)

	No.	*Net Amount Sanctioned*	*Amount Disbursed*
1. Rupee loans and guarantees	161	59.69	42.91
2. Foreign currencies	442	174.39	120.63
Total:	603	234.08	163.54
3. Underwiriting	291	54.04	30.44
4. Direct subscriptions	81	7.57	7.15
Grand Total:	975	295.69	201.13

In initial years, the demand for foreign currency loans was slack because imports of capital equipment were being financed out of free foreign exchange and, for some time thereafter, under deferred payment arrangements. The demand for underwriting and share capital participation, on the other hand, was relatively brisk, except in 1957. Since 1958, demand for both foreign currency and rupee loans has picked up. Until I.F.C. got a D.L.F. loan, and received permission to take up equity, I.C.I.C.I. was the only lender of foreign exchange and the only institution that could offer a comprehensive package of different forms of assistance. Even now though I.F.C., I.D.B. and the Unit Trust have entered the field, I.C.I.C.I. remains pre-eminent as underwriter and lender of foreign exchange.

The Corporation has operated profitably. A dividend of 10 per cent

TABLE LXXII

Industry-wise Distribution of Financial Assistance

(Rs. in lakhs)

Industry	*Net Sanctions*	*%age of Total*
Automobiles and cycles	1,747	5.9
Cement	1,309	4.4
Chemicals and petro-chemicals	6,439	21.8
Electrical equipment	2,449	8.3
Electricity, gas and steam	735	2.5
Food products (other than sugar)	308	1.1
Glass, pottery etc.	812	2.7
Machinery manufacture (other than electricals)	2,959	10.0
Metal products (ferrous)	4,125	14.0
Metal products (non-ferrous)	1,060	3.6
Pulp, paper and paper products	1,451	4.9
Rubber products	988	3.3
Shipping	1,757	5.9
Sugar	269	0.9
Textiles	2,017	6.8
Wood, cork and hard board	181	0.6
Miscellaneous	963	3.3
Total	29,569	100.00

TABLE LXXIII

I.C.I.C.I. Sources of Finance from 1955 to Dec., 1970

Rs. in crores

1.	Share capital	7.50
2.	Reserves	8.23
3.	Sale of investments	11.00
4	Government of India loans	31.41
5.	I.D.B.I. loans	12.30
6.	Foreign currency loans	173.41
	Total:	243.85

was declared in 1970. As at the end of 1970, its interest rates were 8½ per cent on rupee loans and 9 per cent on foreign currency loans.

The first Government loan, advanced to I.C.I.C.I. in 1955, was for Rs. 7.5 crores free of interest, for 30 years, repayable in 15 annual instalments beginning in 1970. It is subordinate to all liabilities and equity. The second Government loan, Rs. 10 crores given in 1959 out of P.L. 480 funds, carries interest at 4½ per cent per annum on amounts drawn and outstanding, repayable over 20 years, in 10 annual instalments commencing 10 years after withdrawal. This loan is subordinate only to I.B.R.D. loans. These two rupee loans were fully utilized by the end of 1963. It secured a third loan of Rs. 10 crores, from P.L. 480 funds, in 1964, of which Rs. 7.5 crores was drawn during the year. In June 1965, it received Government permission to raise the share capital by Rs. 2.5 crores to Rs 7.5 crores.

Foreign Currency Loans: As the institution providing the largest amount of foreign currency loans to the private sector, I.C.I.C.I. has in the last 15 years since inception had received 20 loans of foreign credit totalling the equivalent of $231.21 million (Rs. 173.41 crores). This is made up of eight World Bank credits aggregating $199.39 million (Rs. 149.55 crores), one U.S.AID loan of $4.48 million (Rs. 3.36 crores), nine loans of DM 82.50 million (Rs. 16.90 crores) from Kreditanstalt of West Germany and one for £2 million (Rs. 3.60 crores) from the United Kingdom.

Sub-loans granted out of these credits are stated in the Table below:

TABLE L IV

(Rs. in crores)

	Amount Sanctioned (Rs.)	*Amount Disbursed (Rs.)*
I.B.R.D.	152.01	105.40
Kreditanstalt	13.92	11.87
U.S.AID	3.35	3.35
U.K.	1.46	—
Total:	170.74	120.62

I.B.R D. loans are freely convertible but the others are tied to purchases in the creditor countries.

The pre-conditions of the first I.B.R.D. loan were that the Government would give a rupee loan of Rs. 7.5 crores subordinate to all liabilities and equity capital, and that Rs. 5 crores of ordinary share capital would be subscribed by private investors in and outside India. The second loan given in 1959 was conditional upon another Government loan of Rs. 10 crores subordinate only to I.B.R.D. loans.

The loans are utilized for re-lending to private concerns to finance exclusively the foreign exchange costs of approved projects. The security of sub-loans is to be duly safeguarded by I.C.I.C,I. Both the borrower and the sub-borrower are accountable to I.B.R.D. for proper utilization of the loan. Individual sub-loans out of the first loan required prior I.B.R.D. approval in each case. In the second loan, however, I.C.I.C.I was allowed to relend to any single project upto $100,000, with an aggregate free limit of $1 million, without prior I.B.R.D. approval. These free limits were raised in subsequent loans.

State Financial Corporations: After the setting up of the Industrial Finance Corporation to assist the growth of large public limited companies and industrial co-operatives, it was realized that there was need for similar institutions to finance medium and small scale enterprises

and that such institutions could best be set up on a statewise basis. Accordingly, the State Financial Corporation Act was passed in 1951 and it came into force in August 1952. Under this Act, each State except Tamil Nadu has set up a financial corporation. In Tamil Nadu, the Madras Industrial Investment Corporation (M.I.I.C.) established in 1949 as a joint stock company, is deemed to be the State financial corporation. It is now known as the Tamil Nadu Industrial Investment Corporation after the State was renamed in 1969.

The genesis of S.F.C.s goes back to the Central Banking Enquiry Committee which, among other things, reviewed the working of the State aid to Industries Act then in operation in a few provinces. While not ruling out the setting up of an All India Industrial Corporation under the Central Government, it recommended (in vague terms) the establishment of Provincial Industrial Corporations, with limited assistance from Provincial Governments in the form of guarantee of interest on the first issue of their debentures. The initial move in this direction was, however, made by the Tamil Nadu Government when, in consultation with the Reserve Bank, it set up M.I.I.C. under the Companies Act in 1949. In the same year, Bombay and Punjab sought to have State counterparts of I.F.C. and requested the Centre to enact suitable legislation for the purpose, in order to incorporate special provisions in the charters of the provincial bodies. The first S.F.C. registered under the Act was in Punjab in February 1953. By 1960 twelve states had established their finance corporations.

As at the end of October 1971, there were 18 S.F.Cs. one for each state plus one for the Union Territory of Delhi. The Tamil Nadu Industrial Investment Corporation function as the S.F.C. in the State. othor Union Territories, Chandigarh is served by Delhi, Goa, Daman As for and Diu by Maharashtra, Dadra and Nager Haveli by Gujarat, Pondicherry by Tamil Nadu and Manipur and Tripura by Assam which is also expected to cover Nagaland. It is likely that the jurisdiction of the West Bengal S.F.C.will be extended to the Andaman and Nicobar Islands.

S.F.C. have so far opened 43 Regional or Branch Offices which have led to increase in business. More such offices would be necessary for building up more and new *entrepreneurs* and for encouraging the development of industries in relatively under-developed areas.

Under the statute, the funds of State Governments and the Reserve Bank are employed in these institutions as share capital and debentures but their ownership is also open to the public, financial institutions, etc. The states have guaranteed a minimum dividend on their share capital and have also guaranteed the principal and interest of their debenture issues as well as the principal of deposits from the public; they have a large say in their management through nomination of directors.

issue of directions, employment of senior personnel etc. S.F.C.s can lend only to industrial concerns, which are defined to exclude housing, trading certain service industries, plantations, etc. The maximum assistance to individual units was at first restricted to 10 per cent of each S.F.C.'s share capital subject to a maximum of Rs. 10 lakhs but was raised in 1962 to Rs. 29 lakhs for public limited companies or co-operatives and Rs. 10 lakhs for others. The minimum has remained constant at Rs. 1 lakh. Security requirements are strict — generally a margin of 50 per cent — though these have been relaxed of late. A series of amendments in 1956 and 1962 relaxed many of the restrictions: S.F.Cs. are permitted since 1962 to underwrite share and debenture issues and retain such investments beyond 7 years with prior Reserve Bank permission, extend guarantees or lend against specified guarantees and to borrow from the Reserve Bank. As a result of the amendments, the Reserve Bank has acquired greater control over their working. They can also seek refinance from the Industrial Development Bank. Refinance facilities are liberal and in recent years there has been increasing reliance on I.D.B.I.

The authorized capital of each S.F.C. has to be between Rs. 50 lakhs and Rs. 5 crores and the States decide on the distribution of ownership between themselves, the Reserve Bank, scheduled banks, insurance companies, investment trusts, co-operative banks and others, the last mentioned not to own more than 25 per cent. The intention is that the States and the Reserve Bank together should have the majority ownership.

TABLE LXXV

S.F.C.s' Sources of Finance as at end of Sept., 1971

Rs. in crores

1.	Share capital	22.08
2.	Reserves	6.60
3.	Bonds	74.48
4.	Deposits	8.82
	Total:	111.98

According to the statements of assets and liabilities as in July/August 1971, the S.F.C.s may be classified under four categories. Two—Maharashtra and Tamil Nadu have resources exceeding Rs. 20 crores. The resources of the S.F.C.s of Andhra Pradesh, Gujarat and Karnataka are between Rs. 10 crores and Rs. 20 crores. Seven S.F.C.s—those of Haryana, Kerala, Madhya Pradesh, Punjab, Rajasthan, Uttar Pradesh and West Bengal — between Rs. 7 crores and Rs. 10 crores. The resources of the remaining six Assam, Bihar, Delhi, Himachal Pradesh, Jammu and Kashmir and Orissa are below Rs. 5 crores. These figures reveal that the growth of business of the S.F.C.s has been uneven.

Resources: Of the total paid up share capital of Rs. 22.08 crores, the State Governments contributed Rs. 11.48 crores (about 52 per cent). The share of the Reserve Bank and the I.D.B.I. was Rs. 4.47 crores (20%). The balance was contributed by scheduled banks, the L.I.C. and others.

In order to augment the capital of S.F.Cs., the Reserve Bank in 1970 suggested the private issue of the required capital of each S.F.C. to be subscribed by the State Government and the I.D.B.I. on a 50 : 50 basis and at a minimum guaranteed dividend of 3½ per cent. Accepting the suggestion, Gujarat and Maharashtra S.F.Cs. have raised their capital of Rs. 71 lakhs. Four more S.F.Cs. are expected to follow such to the extent of Rs. 1.4 crores in the aggregate.

The total reserves of the S.F.Cs. amounted to Rs. 6.06 crores or 24 per cent of their aggregate paid up capital as at the end of September 1971. The reserves were made up as follows:

TABLE LXXVI

			Rs. in crores	
			Amount	*% to total*
A.	1.	General reserve	0.75	12
	2.	Special reserve fund	1.40	23
	3.	Special reserve account	2.98	49
	4.	Other reserves	0.93	16
			6.06	100
B.		Total paid up capital	22.80	
		%age of A to B	24	

The reserves increased by Rs. 2.95 crores since the end of March 1969. These are inadequate in relation to, among other factors, their paid up capital and the long period (over ten years) most of them have been in business.

Bond issue has been one of the important resources of the S.F.C.s. The value of bonds outstanding through September 1971 was Rs. 74.48 crores representing 45 per cent of their resources. The bonds are guaranteed by the State Governments. Some State Governments have given exemption to the S.F.Cs. from payment of stamp duty and guarantee commission on the bonds while others have not. The Reserve Bank has been trying to sort this out in consultation with the State Governments concerned.

Refinance from I.D.BI. has been on the increase in the last two years. Aggregate refinance outstandings increased from Rs. 19.8 crores at the end of March 1969 to Rs. 35.5 crores at the end of August 1971. This has been possible because of the concessional fee was offered by I.D.B.I.

Also there has been considerable relaxation of procedures. The re-finance scheme makes it possible for I.F.Cs. to provide financial assistance to small industries and those in backward areas at concessional rates of interest.

As at the end of March 1969, the outstanding balance of refinance of each of a S.F.Cs. exceeded Rs. 50 lakhs. As through September 1971, fourteen S.F.Cs. were in this category.

At the end of August 1971, deposits of 11 S.F.Cs. aggregated Rs. 13.24 crores. Of this the Tamil Nadu Corporation alone accounted for Rs. 8.82 crores. Except for two or three deposits have not been a significant source of funds for S.F.Cs.

The total net profit (before making provision for income tax) of the 18 institutions amounted to Rs. 3.08 crores in 1970-71. In the previous two years the figures were Rs. 2.47 crores and Rs. 2.62 crores. As a percentage of the total paid up capital and revenues, the net profit formed 10.2, 10.4 and 11.4 for the last three years. In relation to the level of profits of S.F.Cs. in 1964-65, their profits for 1970-71 were more than doubled in most cases.

The level of profits has not been adequate to enable S.F.Cs. to undertake monetarial functions or build up a satisfactory level of reserves. This is mainly due to the fact that the rate of interest charged on their borrowers, mostly small and medium scale industries, are lower than the prevailing market rates. On the other hand, they pay the ruling

TABLE LXXVII

Capital and Working Funds of S.F.Cs. (as at end of March, 71)

Rs. in lakhs

No.	*State/ Territory*	*Paid-up capital*	*Working funds*	*% of paid-up capital to working funds*
1.	Andhra Pradesh	150	1,153	13
2.	Assam	100	498	20
3.	Bihar	100	424	24
4.	Delhi	50	342	15
5.	Gujarat	150	1,406	11
6.	Haryana	100	699	14
7.	Himachal Pradesh	35	97	36
8.	Jammu and Kashmir	77	225	32
9.	Kerala	100	673	15
10.	Madhya Pradesh	100	750	13
11.	Maharashtra	175	2,472	7
12.	Karnatka	100	878	11
13.	Orissa	100	414	24
14.	Punjab	75	575	13
15.	Rajasthan	100	560	18
16.	Uttar Pradesh	185	860	22
17.	West Bengal	100	846	12
18.	Tamil Nadu (Madras) I.I.C.	300	2,608	12
	Total:	2,097	15,480	

rates for long term funds to raise the money for their operations. Figures for the last three years 1968-71, show that the spread between the cost of raising resources and return of the S.F.Cs. was between 2 and 3 per cent. In a few, it was higher still.

Loan Operations: Total loans outstanding at the end of September 1971 amounted to Rs 137 crores. In 1969, it was Rs 92 crores and in 1970, Rs 107 crores.

Region-wise S.F.Cs. in the western region accounted for 32 per cent of the total outstandings. The southern region came next with 31 per cent, the northern region 22 per cent and the eastern region 15 per cent. Progress in the western and southern region has been impressive while that in the northern region has been picking up. The eastern region has been lagging behind.

Industry-wise classification of loan and advances outstanding shows that a greater share of recent assistance by S.F.Cs. has been extended to the more modern and sophisticated lines such as chemicals, iron and steel, machinery other than electrical machinery etc.

The share of small industries in the loans and advances of S.F.Cs. increased from Rs 23 crores (25% of total) at the end of March 1969 to Rs 57.67 crores (42% of total) at the end of September 1971.

Seven institutions, Bihar, Haryana, Maharashtra, Karnataka, Orissa, Tamil Nadu and Uttar Pradesh have introduced special schemes for assistance to *entrepreneurs*/technicians offering them credit as soft terms. S.F.Cs. in Madhya Pradesh, Haryana, Jammu and Kashmir, Maharashtra, Karnataka, Orissa, Rajasthan, Tamil Nadu and Uttar Pradesh have similar schemes of assistance to units to be set up in the backward areas.

Underwriting of shares of industrial concerns of S.F.Cs. has not been significant. Except in one or two cases, the entire shares underwritten have desolved on the S.F.Cs. The investment through underwriting operations (and in the case of Tamil Nadu, through direct subscription as well) amounted to Rs 10 crores at the end of March 1971.

In the field of loan guarantees by S.F.Cs., progress has been unimpressive and the record so far shows that this field of business has yet to level up significantly. In 1970-71, outstanding loan guarantees amounted to Rs 6.47 crores. In the earlier two years, the figures were Rs 4.46 crores and Rs 5.46 crores.

Inter-Institutional Co-ordination: The S.F.Cs. were set up mostly in the early fifties, to overcome the difficulties of industries in finding adequate credit at reasonable terms, for their development. The situation changed in the sixties when Government and the Reserve Bank reoriented their policies and strengthened the institutional arrangements for term credit to the industrial section. Further the interest rate policy helped the

growth of long term deposits with banks. The setting up of the Refinance Corporation and later the I.D.B.I. encouraged commercial banks to grant term loans without fear of their liquidity being impaired. The banks went all out to lend to the small scale sector. The immediate impact of all this was a reduction in the number of loan proposals received by the S.F.Cs. which had so far not faced any serious competition Negotiations were held between the banks and the corporations leading to the evolution of participation arrangements. Under these arrangements there was a large scope in financing new projects, through Corporation in credit appraisal, recovery of loans, inspection of units and in desiring schemes of rehabilitation of units in difficulties. The follow-up action on these negotiations was not very encouraging for only a few S.F.Cs. considered it worthwhile to enter into participation arrangements with banks. Even in these cases the scope for participation was limited and inadequate. Many S.F.Cs. feel the arrangements are tilted in favour of the banks. An arrangement in depth under which all the three parties the banks, the S.F.C., and the borrowing unit will have a complementary and co-operative role is yet to be evolved.

State Industrial Development Corporation: Most of the states have established State Industrial Development Corporation. Besides, in Maharashtra, Gujarat and Tamil Nadu, there are State Industrial Investment Corporations (S.I.I.C.).

The S.I.D.Cs. most of them formed around 1961, are essentially the result of frustration with the limited functions and moderate success of the S.F.Cs., particularly their viability to sponsor and promote industrial enterprises. They have been established more on State than Central initiative and represent the desire of the States to play a more active role in the promotion and growth of large scale industries. All these aspirations are exclusively State financed.

The Memoranda of Association of these Corporations empower them to undertake a wide range of functions such as underwriting of and direct subscription to shares and debentures of industrial concerns, making loans and advances to them, providing infra-structure facilities including development of land etc. In practice, however, each Corporation restricts itself to a few major activities, keeping before it the primary objectives with which the Corporation was set up.

For example, in Maharashtra and Gujarat, the S.I.D.Cs. are concerned with the question of recovering the concentration of industries in the metropolitan areas.

In Kerala and Andhra Pradesh, the Corporations are engaged in promoting and participating in industrial projects jointly with private parties. In Bihar and Orissa, industrial projects are promoted, set up and managed in the public sector. Several S.I.D.Cs. extend loans and

advances to industrial concerns and also lend support to their capital issues. They also provide guarantees on behalf of industrial concerns.

All S.I.D.Cs. and S.I.I.Cs. except three, Andhra Pradesh, Haryana and Uttar Pradesh grant term loans to industrial units. All of them except Jammu and Kashmir and Punjab handle underwriting of shares and debentures of industrial concerns. Deferred payment guarantees have been given by the S.I.D.Cs. of Andhra Pradesh, Kerala, Karnataka and Tamil Nadu and by the Gujarat Industrial Investment Corporation (G.I.I.C.) and the State Industrial Investment Corporation of Maharashtra.

This shows that there is considerable scope for overlapping of functions between these institutions on the one hand and the S.F.Cs. on the other. The Reserve Bank has been advising against such overlapping. It has suggested S.I.D.Cs. and S.I.I.Cs. should consider proposals only when the S.F.Cs. are unable to grant the facilities.

TABLE LXXVIII

Loans Sanctioned By S.I.D.Cs./S.I.I.Cs.

Rs. in lakhs

S.I.D.C./S.I.I.C.	*As on*	*No. of units*	*Limits sanction*	*Average limit sanctioned per unit*
1. Karnataka I.I.D.C.	31.3.1970	9	154.48	17.16
2. S.I.I.C. of Maharashtra	,,	38	710.93	18.71
3. West Bengal I.D.C.	,,	19	67.04	3.53
4. Bihar S.I.C.	31.3.1969	11	11.12	1.01
5. Gujarat I.I.C.	30.4.1970	756	1,316.53	1.82
6. Kerala S.I.D.C.	31.3.1970	9	79.75	8.86
7. Madhya Pradesh I.I.C.	31.3.1968	2	13.80	6.90

The above Table shows that the average size of the loans in the case of Maharashtra was Rs. 19 lakhs and in the case of Karnataka Rs. 17 lakhs. They are an indication that the two corporations had assisted units which could not have been financed by the S.F.Cs. The Maharashtra Corporation has a participation scheme with the Maharashtra S.F.C. in terms of which loans are granted jointly by the two organizations. In fact S.I.C. of has similar arrangements with banks as well.

The average amount of loans granted by the S.I.D.C. of Bihar was as low as Rs. 1.01 lakhs, Maharashtra by S.I.D.C. of West Bengal was Rs. 3.53 lakhs and that of the Gujarat I.I.C. was Rs. 1.82 lakhs. Indications are that these three corporations provided bulk of their assistance to small and medium sized units which are eligible for S.F.C. assistance. The Gujarat Industrial Investment Corporation has since taken a decision that financial assistance by way of term loans should be promoted by the S.F.C. and G.I.I.C. would underwrite a part of the public issue of the capital if any and/or make up the balance of the financial assistance required after a unit has granted itself of the maximum facilities from other financing agencies.

In other States, it is possible that some units would have obtained assistance from S.I.D.C. and S.I.I.C. as well as from S.F.C. It is obvious that there should be a clear understanding of the distinctive role of each institution. The I.D.B.I. has recently set up a working group to examine the role and performance of State Financial institutions with particular reference to S.I.D.Cs. and S.I.I.Cs. so that their functions are integrated with the structure of development banking in the country.

S.F.Cs. and All India Finance Institutions: I.F.C.I. and I.C.I.C.I. are all India term lending institutions. Under the statute, I.F.C. can provide financial assistance only to public companies and cooperative societies. Generally I.F.C. finance, medium and large units. The S.F.Cs, on the other hand can assist all categories of units *viz.* proprietory, joint family and partner- ship concerns, private and public limited companies and co-operative societies. The maximum amount of loan together with the loan guarantees which can be given to any one concern should not exceed Rs. 20 lakhs in the case of a public company, or co-operative society and Rs. 10 lakhs in other cases. There have been occasions when S.F.Cs. have offered assistance to units which should really have been provided only by the I.F.C. In some cases S.F.Cs. had tried to overcome the statutory limitation on loans by offering deferred payments guarantees for which there is no ceiling per unit.

In order to bring about co-ordination between the S.F.Cs. and I.F.C., the I.F.C. has been given the right to nominate a Director on the Board of Directors of each S.F.C. The I.F.C. nominee ensures that proposal for large projects received by S.F.Cs. are passed on to I.F.C. for consideration. If the S.F.C. desires, it may be allowed to participate in the transactions to a small extent. This would ensure that projects are scrutinized properly and the concern would be subject to satisfactory financial discipline. In the event of over run of costs, I.F.C. would be in a position to reassess the requirements of the unit and arrange for necessary resources.

I.C.I.C.I. deals entirely with corporate bodies in the large scale sector. Also a large part of its assistance is in foreign currency. I.C.I.C.I. provides foreign currency loans to small units including partnership and proprietory concerns in participation with local financing institutions. However S.F.Cs. do not seem to have taken advantage of such facilities to any significant extent.

L.I.C. assists S.F.Cs. mainly by subscribing to their bonds. S.F.C. bonds held by L.I.C. as on 31 March 1970 totalled about Rs. 20 crores forming 33.3 per cent of the total outstanding bonds of S.F.Cs. as on that day at Rs. 60 crores. As a shareholder L.I.C. has a Director on each S.F.C. In turn, the S.F.Cs. place the bulk of their general insurance with L.I.C.

The Reserve Bank, the I.F.C. and the L.I.C. each have a nominee on the Board of Directors of every S.F.C. A public sector bank is also re-

presented on each S.F.C. However, there is little consultation among these directors about the business of S.F.Cs. This lacuna is to be remedied soon.

S.F.Cs. have been the victims of a vicious circle which began with guaranteed dividends, inadequate resources, absence of tax concessions till 1962, excessive concern with the security and cover offered by borrowers instead of the prospects of the projects to be assisted, and lack of competent staff or outside experts to appraise applications. The dividend subventions received from States have been less than the dividends actually paid to State Governments and the Reserve Bank; dividends to these shareholders are being impounded in special reserves only since 1962. Unlike I.F.C. and I.C.I.C.I. they have not received any cheap and plentiful P.L. 480 funds, while the interest rates which they can charge to borrowers have been kept low as a matter of public policy. Where Governments have agreed to subsidize the low interest rates, the subsidies have been inadequate, partial and delayed.

Statutory restrictions on their working have also been a severe handicap, directly, by narrowing the range of operations and, indirectly, by encouraging subservience to the letter of the law. The ceilings on and floors to the amount of individual loans are such that, in many States, they practically exclude most new industrial activities; underwriting and direct subscription were nearly impossible till 1962 (as for I.F.C. till 1957) and even now they can be undertaken, by and large, only in participation with national institutions, which alone can provide the complementary foreign exchange loans. Dependence on Government personnel for top staff and appraisal of project applications has, among other things, imported attitudes born out of the experience of giving taccavi loans to landowners. The inability of most small borrowers to provide first class or conventional security and to incur the costs of documentation have further come in the way. More recently, the increasing interest of States in S.I.D.Cs. has also served to weaken the potential growth of S.F.Cs.

All these handicaps and problems notwithstanding, the record of S.F.Cs. can be considered as one of moderate success. They could have done better but the record so far certainly does not indicate total failure.

Refinance Corporation for Industry: The Refinance Corporation for Industry was a joint stock company owned by the Reserve Bank, the Life Insurance Corporation, the State Bank of India, and other leading banks. It was set up in 1958 to provide medium-term assistance to medium sized industries through the rediscount of 3 to 7 year bills drawn by member banks. It had total resources of Rs. 31 crores, consisting of share capital of Rs. 5 crores and loan funds of Rs. 26 crores from Government out of P.L. 480 funds at a nominal rate of interest. The rate of interest on the actual amount borrowed was 1½ per cent

TABLE LXXIX

Industry-Wise Classification of Assistance Sanctioned and Disbursed by State Financial Corporations during the Years 1969-70 and 1970-71 (April-March) under Major Heads of Industries

Part A — Assistance Sanctioned

(Rupees in thousand)

Name of the Corporation	Food manufacturing except beverage industry 1970-71	Textile (including Jute) 1970-71	Paper and paper products 1970-71	Manufacture of rubber products 1970-71	Basic industrial chemicals other than fertilizers 1970-71	Other chemicals and chemical products 1970-71	Fertilizers 1970-71	Cement 1970-71
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1. Andhra Pradesh	4,154	3,161	930	99	4,009	—	—	—
2. Assam	345	215	—	—	—	—	—	—
3. Bihar	1,010	—	—	450	—	399	—	—
4. Delhi	500	675	530	160	—	694	—	—
5. Gujarat	2,622	7,793	713	454	5,638	1,084	—	2,975
6. Haryana	4,026	2,090	2,630	750	—	936	—	—
7. Himachal Pradesh	60	—	—	—	—	—	—	—
8. Jammu and Kashmir	519	80	—	—	—	185	—	—
9. Kerala	7,575	1,041	100	878	—	1,005	—	—
10. Madhya Pradesh	1,255	—	—	300	3,005	800	—	—
11. Maharashtra	7,592	14,386	3,596	575	—	8,936	—	—
12. Karnataka	11,620	1,039	—	2,400	—	3,018	—	—
13. Orissa	3,608	—	—	860	—	—	—	—
14. Punjab	2,341	3,969	310	825	230	—	2,318	—
15. Rajasthan	4,856	1,856	458	478	176	1,145	1,037	—
16. Tamil Nadu	8,995	3,411	1,775	1,867	—	2,537	150	—
17. Uttar Pradesh	6,013	864	2,762	1,626	3,875	4,390	—	—
18. West Bengal	1,805	110	2,000	420	50	1,552	—	—

TABLE LXXIX (*Contd.*)

Name of the Corporation	*Basic Metal Industries*		*Metal product except machinery and transport equipments* 1970-71	*Manufacture of machinery except electrical machinery* 1970-71	*Manufacture of electrical machinery, apparatus, etc.,* 1970-71	*Services (including road transports)* 1970-71	*Other industries* 1970-71	*Total assistance sanctioned to all industries during* 1970-71
	Iron and steel basic industries 1970-71	*Non-ferrous metal basic industries* 1970-71						
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1. Andhra Pradesh	4,700	3	1,271	3,986	1.446	4,316	7,753	35,828
2. Assam	—	—	320	—	—	—	610	1,578
3. Bihar	2,275	—	1,140	1,755	260	—	3,619	10,908
4. Delhi	1,495	—	1,460	1,185	2,465	—	13,503	22,667
5. Gujarat	1,317	717	2,167	6,065	2,320	16,861	17,847	68,572
6 Haryana	2,000	600	4,363	2,720	440	338	2,902	23,795
7. Himachal Pradesh	—	—	600	—	—	2,920	2,104	5,684
8. Jammu and Kashmir	—	—	115	—	—	11,533	2,913	15,345
9. Kerala	—	—	1,637	3,498	—	563	3,795	20,092
10. Madhya Pradesh	900	—	375	2,575	—	341	1,163	10,714
11. Maharashtra	5,319	—	6,632	4,600	519	30,219	23,720	106,094
12. Karnataka	2,355	—	300	232	3,120	9,583	21	33,688
13. Orissa	290	—	395	100	172	56	2,384	7,863
14. Punjab	1,707	—	1,061	481	1,150	2,596	5,757	22,745
15. Rajasthan	1,222	80	380	765	699	2,797	7,369	23.322
16. Tamil Nadu	814	—	—	331	2,500	—	1,133	23,513
17. Uttar Pradesh	7,253	1,025	5,302	1,335	457	—	1,133	23,513
18. West Bengal	830	—	265	500	300	1,569	5,328	14,739

TABLE LXXIX (*Contd.*)

Part B — Assistance Disbursed

(Rupees in thousand)

Name of the Corporation	*Food manufacturing beverage industry* 1970-71	*Textile (including jute)* 1970-71	*Paper and paper products* 1970-71	*Manufacture of rubber products* 1970-71	*Basic industrial chemicals other than fertilizers* 1970-71	*Other chemicals and chemical products* 1970-71	*Fertilizers* 1970-71	*Cement* 1970-71
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1. Andhra Pradesh	163	2,117	366	109	3,193	—	—	—
2. Assam	566	—	—	—	—	24	—	—
3. Bihar	1,327	—	145	124	—	119	—	—
4. Delhi	696	699	265	120	—	786	—	—
5. Gujarat	2,281	5,905	718	227	909	1,277	—	—
6. Haryana	570	438	500	579	—	159	—	—
7. Himachal Pradesh	401	—	—	—	—	—	—	—
8. Jammu and Kashmir	690	50	—	—	—	55	—	—
9. Kerala	4,735	1,069	75	379	—	950	—	—
10. Madhya Pradesh	816	85	100	723	1,826	797	—	—
11. Maharashtra	1,113	11,397	8,100	641	—	4,299	—	—
12. Karnataka	5,569	155	—	665	—	1,508	9	—
13. Orissa	1,885	7	—	84	—	5	400	—
14. Punjab	1,150	2,926	269	193	—	—	164	—
15. Rajasthan	2,412	1,543	—	24	40	336	706	50
16. Tamil Nadu	2,594	4,446	1,451	306	—	5,086	150	—
17. Uttar Pradesh	5,541	661	171	609	97	3,777	73	—
18. West Bengal	—	620	570	325	300	440	—	—

TABLE LXXIX (*Contd.*)

Part B—Assistance Disbursed

Name of the Corporation	*Basic Metal Industries*		*Metal products except machinery and transport equipments*	*Manufacture of machinery except electrical machinery*	*Manufacture of electrical machinery, apparatus etc.*	*Services (including road transport)*	*Other industries*	*Total assistance disbursed to all industries during*
	Iron and steel basic Industries 1970-71	*Non-ferrous metal basic Industries* 1970-71	1970-71	1970-71	1970-71	1970-71	1970-71	1970-71
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1. Andhra Pradesh	1,262	—	324	2,156	1,112	3,142	4,965	22,909
2. Assam	10	—	220	—	—	61	1,220	210
3. Bihar	2,620	—	824	560	222	—	1,540	7,481
4. Delhi	923	—	921	1,028	1,701	—	7,962	15,091
5. Gujarat	619	389	8,438	6,910	999	22,467	2,864	55,103
6. Haryana	—	—	117	941	—	114	7,577	10,995
7. Himachal Pradesh	—	—	372	—	—	2,824	2,082	5,679
8. Jammu and Kashmir	—	—	76	—	40	10,671	1,272	12,854
9. Kerala	89	—	412	2,579	—	120	2,761	13,169
10. Madhya Pradesh	829	—	240	169	40	189	1,924	7,738
11. Maharashtra	1,432	—	5,367	3,686	1,553	29,251	15,236	82,075
12. Karnataka	2,133	—	360	113	1,653	7,233	474	19,872
13. Orissa	71	—	144	—	—	56	299	2,951
14. Punjab	519	—	265	303	711	973	2,733	10,206
15. Rajasthan	939	80	818	585	597	996	2,822	11,348
16. Tamil Nadu	1,011	—	11	1,080	528	—	3,737	20,400
17. Uttar Pradesh	1,700	—	2,747	2,241	1,939	—	2,227	21,783
18. West Bengal	25	—	—	755	800	718	1,874	6,427

TABLE LXXXVI

Operations Of State Financial Corporations

(Amounts in lakhs of rupees)

Name of the Corporation	*Loans sanctioned during*			*Loans disbursed during*			*Loans outstanding as at the end of*		
	1968-69	1969-70	1970-71	1968-69	1969-70	1970-71	*March* 1969	*March* 1970	*March* 1971
1. Andhra Pradesh	91	213	358	131	102	229	748	776	948
2. Assam	34	28	16	25	35	21	402	429	446
3. Bihar	31	55	109	48	42	75	320	336	406
4. Delhi	78	125	227	41	80	151	142	203	329
5. Gujarat	248	520	686	246	345	551	557	803	1,213
6. Haryana	100	141	238	127	113	110	565	602	647
7. Himachal Pradesh	32	31	57	7	8	57	22	28	78
8. Jammu and Kashmir	60	60	153	60	74	128	125	152	217
9. Kerala	91	107	201	101	116	132	379	489	601
10. Madhya Pradesh	37	95	107	43	79	77	563	606	630
11. Karnataka	173	163	337	139	136	199	534	630	821
12. Maharashtra	197	817	1,061	300	440	821	1,421	1,665	2,242
13. Orissa	47	48	79	41	45	30	293	289	303
14. Punjab	73	114	227	81	76	102	316	359	420
15. Rajasthan	60	135	233	62	100	119	388	457	513
16. Uttar Pradesh	143	337	429	76	159	218	375	487	653
17. West Bengal	122	92	147	76	65	64	663	677	710
18. Tamil Nadu	118	159	235	138	130	204	1,376	1,467	1,611
Total:	1,935	3,240	4,900	1,742	2,145	3,288	9,189	10,455	12,788

in the first year, rising gradually to 2¾ per cent in 1961, 3 per cent in 1962 and to the maximum of 4 per cent in 1963, the last complete year of operations. Critics questioned the need for such an institution as a separate entity but the U.S. Aid Mission, it appears, was eager to place Rs. 26 crores of counterpart funds at the disposal of private industry through private financial agencies. In 1957, the resources of banks were under heavy strain and their borrowing from the Reserve Bank had reached what they believed was the prudent limit. The Government did not want to place a large volume of P.L. 480 funds directly with private banks. By the time the compromise proposition in the form of this Corporation got through, the banks recovered their liquidity, mainly through a large influx of deposits and also through some easing of the demand for credit. This quasi-private institution always worked as a department of the Reserve Bank without any establishment of its own.

Monetary stringency after 1960 and successive steps to relax its lending terms and scope of activities brought about a considerable and useful enlargement of the Corporation's operations through 1964. Initially, it could only refinance the medium term bills of member banks upto a limit of Rs. 50 lakhs drawn by industrial concerns whose paid up capital and reserves did not exceed Rs. 2.50 crores. Later, all scheduled banks were made eligible for such assistance and in 1962, S.F.Cs. also were permitted to approach the Corporation on similar terms. With effect from January 1963, the Corporation was designated as the authority for refinancing of medium term export credits. It also took up the scheme of guarantee of rupee loans by banks and financial institutions to coal companies for their expansion, the foreign exchange for which was provided by a World Bank Loan.

Through 1963, the Corporation received 422 applications for a total assistance of Rs. 63.70 crores, of which 335 applications for Rs. 51.11 crores were sanctioned, and Rs. 28.09 crores was disbursed. Most of the assistance went to new industries like metals, engineering and chemicals but traditional industries like sugar and textiles received about one-third of the total amount sanctioned. Almost one-half of the total assistance disbursed was absorbed in 1963 alone. The effective sanction of Rs. 45 crores at the end of 1963 related to private projects scheduled to cost Rs. 140 crores in the aggregate, of which the Corporation's assistance amounted to 32 per cent.

The Corporation was merged in the newly created Industrial Development Bank in September 1964. The pace of operations picked up further in that year partly because the terms of lending were liberalized further towards the end of August. The limit of refinance in respect of any single unit was raised from Rs. 50 lakhs of total amount sanctioned to Rs. 1 crore of outstanding loan amount, and applications

for still larger amounts were made subject to consideration. Borrowers with paid up capital and reserves of more than Rs. 2.5 crores were also made eligible and term lending institutions (like I.F.C, S.F.Cs, etc.) were permitted to seek refinance for periods longer than 10 years. At the same time, refinance was restricted to 80 per cent instead of 100 per cent of the amount offered for refinance. In 1964, disbursement rose 62 per cent over the previous year's level to Rs. 21.34 crores. Total sanctions from 1958 through 1964 amounted to Rs. 73.77 crores and total disbursements Rs. 49.43 crores, of which Rs. 42.16 crores was outstanding, Rs. 34.46 crores from commercial banks and the rest from other financial institutions.

The lending rate of the Corporation was 5 per cent from inception till March 1963, when it was raised to 5.5 per cent. The concessional rate for export credit was reduced from 5 per cent to 4.5 per cent in December 1963, on condition that the banks charged no more than 6 per cent.

Under the coal loans guarantee scheme introduced in April 1963, 44 applications for Rs. 4.8 crores were received from eleven credit institu-

TABLE LXXXI

Refinance Corporation 1958 — 1963

Industry	*Applications received* *No.*	*Amount* (Rs. lakhs)	*Application sanctioned* *No.*	*Amount* (Rs. lakhs)	*Amount disbursed* (Rs. lakhs)
1. Coal	14	210	8	117	11
2. Food	42	730	31	518	331
3. Textiles	92	1,507	68	1,171	492
4. Paper	15	207	12	188	99
5. Rubber products	5	73	4	71	61
6. Chemicals	51	758	45	615	427
7. Artificial fibres	6	164	6	164	97
8. Glass and ceramics	14	160	9	112	70
9. Cement	4	140	4	140	50
10. Ferrous metals	19	270	15	21	146
11. Non-ferrous metals	8	110	7	108	38
12. Other metals	16	149	14	142	83
13. Electrical equipment	35	529	31	409	268
14. Transport equipment	15	272	11	197	156
15. Other machinery	46	679	37	573	317
16. Hotels	6	36	5	29	23
17. Others	34	376	28	346	140
Total:	422	6,370*	335	4,921**	2,809
Export Credits	1	11	1	11***	8
Grand Total	423	6,381	336	5,121	2,817

*Including Rs. 281 lakhs rejected, Rs. 30 lakhs ineligible for refinance, and Rs. 312 lakhs withdrawn, making a total of Rs. 623 lakhs.

**Including Rs. 595 lakhs ineffective.

***Including Rs. 3 lakhs ineffective.

tions. Of these, 32 guarantees for Rs. 3.1 crores were issued till the end of 1964. The losses, if any, on the guarantee are shared between Government and lending institutions in the ratio of 65 : 35.

National Industrial Development Corporation: The National Industrial Development Corporation (N.I.D.C.) was set up in October 1954 as a joint stock company wholly owned by the Central Government. It was to act, in effect, within the (then) Ministry of Commerce and Industry more as a development corporation than as a development bank. Its functions were twofold: (i) the study, appraisal and promotion of new projects, both public and private, to fill gaps in the industrial structure, and (ii) financing the rehabilitation of joint stock cotton and jute mills, to which the development of machine tool industry was added later. The authorized share capital was Rs. 1 crore but the paid up capital in March 1964, when its activities practically came to an end, was Rs. 50 lakhs after being raised in successive stages from the initial capital of Rs. 10 lakhs. The increase in capital enabled the Corporation to invest in its subsidiary, Pyrites and Chemicals Development; when this company ceased to be a subsidiary in 1964, the share capital of N.I.D.C. was sought to be reduced to the original Rs. 10 lakhs. In 1963, Government placed a moratorium on fresh loan appraisals by N.I.D.C.

The share capital of N.I.D.C. was kept low since performance of the first function was financed out of Government grants, and the second from Government loans which were re-lent to approved concerns. The Development Wing (now the Department of Technical Development), then within the same Ministry, actually handled most of the work connected with the promotional function and got reimbursed by N.I.D.C. which in turn recovered the expense from Government grants. Preliminary and promotional work of this nature in the name of N.I.D.C. was carried out for the basic chemicals and intermediates plant at Panvel (Maharashtra), raw films project in Mysore (Karnatak), drugs projects with Soviet aid, the heavy engineering and mining machinery projects with Soviet and Czech aid, and certain other heavy engineering projects (structurals and plates and vessels, etc.). It also worked on proposals for carbon black, newsprint from bagasse, sulphur from pyrites, precision instruments, compressors and pumps, aluminium and rayon pulp, etc. N.I.D.C's. own contribution in this field started only with the setting up of its Technological Consultancy Bureau in 1961 to provide design and consultancy services.

N.I.D.C. loans were on easy terms; it could accept a second mortgage, lend up 80 and 50 per cent, respectively, of the unencumbered value of fixed assets against first and second mortgages, and it charged lower interest rates than other institutions but its loans were repayable over 10 to 15 years. As of March 1964, it had sanctioned 114 applications

for loans aggregating Rs. 28.19 crores, mostly to cotton mills, and disbursed Rs. 14.86 crores, of which approximately Rs. 11 crores was outstanding. The whole of the outstanding amount was financed by unsecured loans from Government.

TABLE LXXXII

N.I.D.C. Loans 1954-64

(Amounts in Rs. lakhs)

		Cotton	*Jute*	*Machine tools*	*Total*
1. Applications received	No.	157	78	5	240
	Amt.	7,312	2,127	106	9,545*
2. Applications approved	No.	67	48	4	114
	Amt.	1,965	754	100	2,819
3. Loans disbursed	Amt.	841	557	88	1,486

*Including rejections of Rs. 21.39 lakhs and Rs. 27.84 lakhs withdrawn.

In 1964, the lending functions of N.I.D.C. were transferred first to I.F.C. and then to I.D.B. Technical Consultancy Bureau continues to provide its services both in the country and abroad. The range of its consultant engineering services covers detailed designs of projects, preparation of project reports, pre-investment and feasibility studies and technical and economic evaluation of schemes. In addition the Corporation has developed a Documentation Centre equipped with price indices for machinery equipment, wage levels, construction costs etc., to assist banks and financial institutions in evaluating loan applications for industrial projects and schemes.

The earnings from consultancy services over a five year period increased by Rs. 47 lakhs to Rs. 69.00 lakhs in 1969-70. Foreign exchange earnings for its services abroad were valued at Rs. 10 lakhs as against Rs. 6 lakhs in the previous year.

The N.I.D.C. acts as the agency of the Government of India for the grant of loans to cotton textile and jute industries for the purpose of rehabilitation and modernization of machinery and to machine tool units for expansion and rehabilitation.

Industrial Development Bank of India: The Industrial Development Bank of India was established as a statutory body on July 1, 1964. It is a wholly owned subsidiary of the Reserve Bank of India. Its functions are.

(i) to act as an apex industrial finance institution for refinancing the institutions already in existence,

(ii) to provide direct financial assistance of all kinds to industrial concerns, defined to include manufacturing and processing, shipping, mining, hotel, transport and power undertakings, and

(iii) to refinance credits extended by commercial banks to industrial borrowers.

It can undertake research and surveys for evaluating and dealing with marketing or investments, carry out techno-economic industrial studies, provide technical and administrative services to industry, plan, promote and develop industries to fill up gaps in the industrial structure, from subsidiaries *and do any other business* which Government, on the recommendation of the Reserve Bank, may authorize. In a word, it is expected to see that no worthwhile priority project suffers for lack of funds. It has been endowed with adequate potential resources and operational flexibility.

Apex Role and Co-ordination: The I.D.B.I., through a variety of mechanism, functions as an apex bank and a sa co-ordinator of institutional activities in the development of finance for industry. On the one hand, it has granted substantial financial assistance besides assuming the role of leadership in several cases. Because of technological compulsions, certain projects have to be large ones in which investment is substantial. For example, six major fertilizer projects, two cement expansion schemes, four petro-chemical projects, an alloy steel plant and two aluminium projects have received assistance.

As co-ordinator, on the other hand, it holds a monthly Inter-Institutional Meeting at which the Life Insurance Corporation of India, the Unit Trust of India, the Industrial Finance Corporation of India and the Industrial Credit and Investment Corporation of India are represented. At these meetings, broad policies in project financing are discussed and co-ordinated and proposals are considered for financial and technical assistance on a consortium basis for large and medium industries.

In respect of small project all over the country, I.D.B.I. fulfils its role of purveyer of supplementary resources and co-ordinator — through refinancing of industrial loans and rediscounting of machinery bills. It has also been giving direct assistance to comparatively small projects where the talents of technician-*entrepreneurs* come into play. Textiles, fertilizers, electronics and light engineering industries are some that have been given direct assistance. These schemes have enabled the Bank to facilitate industrialization in many places.

In the field of medium and long term export financing for engineering goods, I.D.B.I. again has been playing a dual role through its scheme of refinancing assistance by banks as well as direct participation with the banks in providing export finance.

Further, I.D.B I. has been taking a hand in strengthening the financial structure of State Finance Corporations and the other loan lending institutions like I.F.C.I. and I.C.I.C.I. through subscriptions to their bonds and shares.

The authorized share capital is Rs. 50 crores which can be increased by the Reserve Bank with prior Government permission to Rs. 100 crores. Paid up capital in the first instance was Rs. 10 crores and was increased to Rs. 30 crores in January 1971. The Central budget in 1965-66 provided for a Government loan of Rs. 45 crores. It can borrow, free of interest, Rs. 10 crores from Government, repayable over 30 years, repayment commencing 15 years after the date of receipt, and can get further loans from Government as and when required. Net borrowings at the end of June 1971 stood at Rs. 146.7 crores. It can issue bonds with or without Government guarantee, borrow from any approved institutions in India, accept long term deposits and receive foreign currency loans with prior Government permission. It can borrow from the Reserve Bank (i) against trustee securities for ninety days, (ii) against genuine commercial bills for 5 years and (iii) out of the National Industrial Credit (Long Term Operations) Fund. The N.I.C. Fund was simultaneously established at the Reserve Bank with an initial sum of Rs. 10 crores, which now amounts to Rs. 80 crores. The Fund is used exclusively for the purchase of I.D.B.I. bonds and loans to I.D.B.I. for its purchase of shares and bonds of financial institutions.

TABLE LXXXIII

Principal Sources of Funds
1964-1971

(Rs. in crores)

No.	*Source*	*Amount*	*Percentage to total*
1.	Increase in paid up capital and reserve/surplus	48.2	12.1
2.	Borrowings from Government	145.0*	36.4
3.	Borrowings from Reserve Bank	55.0	13.8
4.	Borrowings by way of debentures	—**	—
5.	Repayment of assistance	137.0	34.4
6.	Sale of investment	2 7	0.7
	Total (including cash/liquid resources and other items)	398.2	100.0

*Includes Rs. 1 crore borrowed by R.C.I. between July and August 1964 but excluding Rs. 32.5 crores borrowed by it upto the end of June 1964.

**I.D.B.I. has provided for Rs. 15.0 crores in 1971-72 estimated.

I.D.B.I. has set up a Development Assistance Fund as required in the Act. Assistance out of this Fund would be extended to high priority industrial concerns with prior Government permission which cannot raise funds in the normal course. This revolving fund is built up through Government loans and grants. Since its establishment on March 27, 1965 with a token amount of Rs. 1 lakh, the fund now totals Rs. 27.9 crores and its profits stood at Rs. 98 lakhs in 1970-71.

During the first six months of operations from July to December 1964, I.D.B.I. sanctioned 10 applications, all for underwriting, with a total

mitment of Rs. 1.15 crores but no amount was disbursed. Its first ventures have been in underwriting because I.F.C. is traditionally chary of such activity and its experience of such activity after taking it up at a late stage has not been too happy due to the state of the capital market, while I.C.I.C.I. has been tending to run short of rupee funds. Participation of brokers and other private agencies is being deliberately encouraged and organized by giving them a share in I.D.B.I.'s own underwriting commission in order to broaden the base of the capital market. No direct loans were sanctioned during the first six months.

During the year as a whole, the total sanctions amounted to Rs. 44.5 crores. This was exclusive of guarantees but inclusive of direct loans and underwritings (47.4%), refinance of industrial loans (47.0%), subscription to shares and bonds of financial institutions (4.9%), export-finance (0.5%) and rediscounting of machinery bills (0.2%). Cash disbursals were Rs. 23.9 crores.

Since its inception till the end of June, 1971, I.D.B.I. sanctioned assistance to 3,706 units amounting to Rs. 466.2 crores. Disbursals totalled Rs. 358.4 crores. This excludes subscriptions to the shares of I.F.C.I. and the newly created Industrial Reconstruction Corporation of India.

TABLE LXXXIV

I.D.B.I. Operations from 1964 to June 1971

(In Rs. crores)

No.	*Type of Assistance*	*Units*	*Sanctions*	*Disbursals*
1.	Direct loans to industrial concerns (other than for exports)	112	148.1	89.6
2.	Underwriting of and direct subscription to shares and debentures	103	28.5	19.6
3	Refinance of industrial loans	3,188	123.3	118.1
4.	Rediscounting of bills	209	89.9	77.0
		3,612	389.8	304.3
5.	Direct loans for exports	32	29.1	14.9
6.	Refinance of export credits	45	24.0	16.6
	Total:	3,689	442.9	335.8
7.	Subscriptions to shares and loans of financial institutions	17	23.3	22.6
	Total 1 to 7	3,706	466.2	358.4
8.	Guarantees for loans and deferred payments	14	29.3	19.1
9.	Export guarantees	3	1.7	1.6

Since the bank started its operations, there has been, over the years, some shift in the composition of I.D.B.I. assistance from direct financing of industrial concerns (other than for exports) to channelizing of finance through the intermediary of other financial institutions as well as direct

assistance for exports in participation with banks. The substantial assistance in the form of refinance, and subscription to bonds and shares of other financial institutions that the I.D.B.I. now extends, emphasizes its growing responsibility as an apex institution in this field. This role as a catalytic agent would continue to grow in the future in promoting and financing industrial development in the backward regions.

The rate of interest charged by I.D.B.I. is 8½ per cent on direct loans, 6.75 to 7% on refinance, rediscounting of bills 5 to 6 per cent, export credit refinance against medium term export credits — 4.5 per cent.

Organization and Management: Management is vested in a Board of Directors, same as that of the Reserve Bank. The Governor is Chairman and one of the Deputy Governors is Vice-Chairman. Actual superintendence and management are vested in an Executive Committee of the Board, consisting of ten members including the Chairman and Vice-Chairman who meet once a month. Project applications are appraised by *ad hoc* groups, one for each project, consisting of technical, financial and managerial experts drawn from a panel of specialists working in public and private enterprises. The Deputy Chairman heads each *ad hoc* group. This procedure, which differs from that both I.F.C. and I.C.I.C.I., has, according to the Bank, proved efficient, quick and satisfactory during the limited period for which it has been in existence.

With the establishment of I.D.B.I., the share capital of I.F.C. was raised from Rs. 7 crores to Rs. 8.35 crores. The entire additional share capital, together with the shares held by Government and the Reserve Bank, were transferred to I.D.B. to enable it to hold 50 per cent of the total share capital. The power to issue directives to I.F C. has also been transferred from Government to I.D.B. These changes notwithstanding, I.F.C. remains as autonomous and distinctly separate organization.

Under its charter, I.D.B. can lend to other financial institutions only through refinance of their loans which are repayable on the expiry of not less than three years and not more than 25 years, or by subscribing to their bonds and share capital. Ultimately, I.D.B. will entirely replace Government as a source of rupee funds but the transition will be smooth.

I.D.B.'s Promotional Functions: In order to develop live and intimate contact with the economic situation and potentialities in different regions in the country, the Bank took the first step. The Bank established three Regional Offices, at Madras in South, Calcutta in the east and New Delhi in the north with a committee for each. In the west the Regional Committee will function in Bombay.

A Committee of Directors comprising senior officials of the I.D.B.I., I.C.I.C.I., the Agricultural Refinance Corporation and of the Reserve

Bankhas been set up to initiate surveys of industrial possibilities in relatively oackward States. The next step will be to discuss the project ideas that have emerged from the surveys with the State Governments concerned. The other steps relate to identification and search for *entrepreneurs*, preparation of detailed project reports and actual implementation of such projects with the technical and financial assistance of financial institutions. Towards this end, a move has been initiated to bring together State level institutions like the S.F.C.S., S.I.D.C./S.I.I.C., the "lead" banks in the States, Industries Department of State Governments and the All-India term-lending institutions such as I.F.C.I., I.C.I.C.I., and the A.R.C. under the leadership of I.D.B.I. to form an Inter-Institutional Group to further facilitate this work, a jointly sponsored and financial Technical Consultancy Service Centre (TCSC) for each State.

TABLE LXXXV

Classification of Export Finance* Sanctioned by the I.D.B.I. upto the end of June 1971 according to Destination of Exports and Commodity Exported

(Rupees In crores)

Name of the country	*Value of Exports financed by I.D.B.I./ banks*	*Amount of I.D.B.I. assistance*	*Commodity*			
			Transmission line towers and conductors	*Textile machinery*	*Steel rails, bars and railway track equipment*	*Steel construction aids*
1	2	3	4	5	6	7
Iran	37.0	20.8	11.9	—	6.4	—
U.A.R.	14.0	9.5	—	8.4	—	0.6
Burma	6 9	3.0	—	—	3.0	—
Ceylon	1.1	0.8	—	—	—	—
Thailand	0.5	0.2	0.1	0.1	—	—
Czechoslovakia	0.4	0.3	—	0.3	—	—
West Germany	0.3	0.3	—	—	—	—
Poland	0.1	0.1	—	0.1	—	—
Uganda	3 0	1.4	—	—	—	—
Sudan	2.5	0.2	0.2	—	—	—
Nigeria	5.3	3.7	0.2	—	—	—
Kenya	0.02	0.02	—	—	—	—
Indonesia	0.9	0.5	—	—	—	—
G.D.R. (East Germany)	0.4	0.4	—	0.4	0 2	—
Hungary	8.3	4.3	—	—	—	—
Republic of Korea	9.4	5.0	—	—	5.0	—
New Zealand	1.3	0.5	—	—	0.5	—
Lebanon	0.01	0.01	—	0.01	—	—
Others	2.8	2.1	—	—	—	—
Total:	94.2	53.1	12.4	9.3	15.1	0.6

*Comprising direct loans for exports and refinance of medium term export credits.

TABLE LXXXVI

Classification of Export Finance* Sanctioned by the I.D.B.I. Upto the end of June 1971 according to Destination of Exports and Commodity Exported

(In crores of rupees)

Name of the country	Commodity						
	Railway wagons	*Diesel engines*	*Sugar mill machinery*	*Auto-mobiles and spares*	*Water treat-ment plants*	*Fire fighting equip-ments*	*Others*
Iran	2.5	—	—	—	—	—	—
U.A.R.	—	—	—	0.2	0.2	0.1	—
Burma	—	—	—	—	—	—	—
Ceylon	—	—	—	0.8	—	—	0.5
Thailand	—	—	—	—	—	—	—
Czechoslovakia	—	—	—	—	—	—	—
West Germany	—	0.3	—	—	—	—	—
Poland	—	—	—	—	—	—	—
Uganda	—	—	1.4	—	—	—	—
Sudan	—	—	—	—	—	—	—
Nigeria	—	—	—	3.5	—	—	—
Kenya	—	—	—	—	—	—	0.02
Indonesia	—	—	—	—	—	—	0.3
G.D.R. (East Germany)	—	—	—	—	—	—	—
Hungary	4.3	—	—	—	—	—	—
Republic of Korea	—	—	—	—	—	—	—
New Zealand	—	—	—	—	—	—	—
Lebanon	—	—	—	—	—	—	—
Others	—	2.1	—	—	—	—	—
Total:	6.8	2.4	1.4	4.5	0.2	0.1	0.8

*Comprising direct loans for exports and refinance of medium-term export credits.

TABLE LXXXVII

Industry-wise Classification of Financial Assistance Sanctioned and Disbursed by I.D.B.I., since Inception upto June 1971

(Rupees in lakhs)

Industry	*Total assistance sanctioned*	*Percentage of totals availed for all industries*	*Total disburse-ments*
1	2	3	4
1. Coal mining	81.1	0.2	231.5
2. Stone, quarrying, clay and sand pits	43.9	0.1	30.3
3. Metal mining	50.9	0.1	48.1
4. Food manufacturing industries, except beverage industries:			
(a) Sugar	291.0	0.7	260.5
(b) Others	617.2	1.4	526.6
5. Tobacco manufacturing industries	2.6	—	1.1
6. Manufacture of textiles:			
(a) Cotton textiles	3,163.5	7.1	2,975.7
(b) Others	1,064.5	2.4	951.9
7. Manufacture of wood and cork except manufacture of furniture	56.0	0.1	74.9
8. Manufacture of furniture and fixtures	14.8	—	9.8
9 Manufacture of paper and paper products	1,433.8	3.2	798.5

TABLE LXXXVII (Contd.)

Industry	Total assistance sanctioned	Percentage of totals availed for all industries	Total disburse-ments
1	2	3	4
10. Printing, publishing and allied industries	134.8	0.3	119.9
11. Manufacture of leather and leather and fur products except foot-wear and other wearing apparel	10.4	—	4.0
12. Manufacture of leather foot-wear and wearing Apparel	61.3	0.1	45.7
13. Manufacture of Rubber Products	236.2 (241.5)	0.5	153.3
14. Manufacture of Chemicals & Chemical Products:			
(a) Basic industrial chemicals other than fertilisers	3,597.4 (1,081.4)	8.1	2.893.3 (1,081.4)
(b) Fertilizers	4,977.8 (1,085.0)	11.2	3,769.3 (573.1)
(c) Vegetable and animal oils and fats (except edible oils)	76.4	0.2	61.9
(d) Manufacture of artificial fibres	857.1 (90.0)	1.9	236.4
(d) Manufacture of chemical and dissolving pulp (rayon grade)	200.0	0.5	200.0
(f) Manufacture of paints, varnishes and lacquers	116.8	0.3	76.7
(g) Manufacture of miscellaneous chemical products	1,114.7 (8.4)	2.5	973.4 (8.4)
15. Manufacture of Products of Petroleum and Coal:	45.5	0.1	38.6
16. Manufacture of Non-Metallic Mineral Products except Products of Petroleum and Coal			
(a) Manufacture of structural clay products	143.1	0.3	68.9
(b) Manufacture of glass and glass products	336.7	0.8	269.6
(c) Manufacture of pottery. China and earthen ware (ceramics)	97.3	0.2	87.1
(d) Cement	1,341.0 (248.5)	3.0	1,163.9 (248.5)
(e) Grinding wheels and abrasives	0.3	—	4.0
(f) Asbestos	42.5	0.1	40.8
(g) Not elsewhere classified	116.6	0.3	61.5
17. Basic Metal Industries:			
(a) Iron and steel basic industries	4,864.8	11.0	2,564.5
(b) Non-ferrous metal basic industries	1,295.5 (171.0)	2.9	506.2
18. Manufacture of metal products except machinery and transport equipment	581.2	1.3	414.1
19. Manufacture of machinery except electrical machinery	12,929.9 (1.1)	29.2	10,611.2 (1.1)
20. Manufacture of electrical machinery, Apparatus, Appliances and supplies	2,769.3 (169.1)	6.3	2,042.0 (156.6)
21. Manufacture of transport equipment	419.6	1.0	385.8
22. Miscellaneous manufacturing industries	324.3	0.9	267.2
23. Electricity, gas, water, and sanitary services, gas manufacture and distribution (industrial gases)	12.7	—	19.8

TABLE LXXXVII (contd.)

Industry	*Total assistance sanctioned*	*Percentage of totals availed for all industries*	*Total disbursements*
1	2	3	4
24. Services:			
(a) Hotel industry	150.8	0.3	141.2
(b) Road transport	585.7	1.3	421.6
(c) Others	30.9	0.1	30.9
Total:	44,290.0 (3,095.9)	92.0	33,589.4 (2,069.1)

Unit Trust of India: The Unit Trust of India was set up on February 1, 1964 as a statutory body. As laid down in the Act, the Reserve Bank has contributed one-half of the initial capital of Rs 5 crores, L.I.C. Rs. 75 lakhs, the State Bank of India and its subsidiaries another Rs. 75 lakhs, and 30 other scheduled banks, Rs. 66 lakhs. By affording the relatively small investors a means of acquiring a share in industrial development at minimum risk and at a reasonable return, the Trust is expected to tap a significant volume of savings which may not have otherwise sought employment in industrial investment.

The sale of Trust Units commenced on July 1, 1964. The first year's sales amounted Rs. 19.1 crores. Repurchases were Rs. 41 lakhs. Together with the initial capital of Rs. 5 crores, a sum of Rs. 24 crores was available with the Trust for disposal.

In the seventh year of its operations, sales during the year ended June 30, 1971 totalled Rs. 18 crores. Less repurchases, the net investment was Rs. 14.80 crores. Sales in the previous year were higher by Rs 4.84 crores and repurchases were also less by Rs, 1.16 crores. The sales in 1970-71 were, however, higher than those in any of the earlier year, 1965-66 upto 1968-69.

The modest setback in 1970-71 reflected mainly the hardening of interest rates in the economy which resulted in the upward revision in the pattern of yields in the market, increase in the interest rates in rival channels of investment and also the change in the scheme of tax concessions.

The aggregate value of units sold and outstanding as on June 30, 1971 was over Rs. 92.25 crores. The total number of unit holders registered with the Trust were more than 3,80,000. In 1970-71, almost the whole of the investments in Units was by individuals who accounted for Rs 17.36 crores. Institutions invested Rs 63.50 lakhs only.

The Trust has introduced four schemes to popularize investment in units among different segments of the community. These are the

TABLE LXXXVIII

State-wise Distribution of Financial Assistance Sanctioned and Disbursed by the I.D.B.I. during July 1964—June 1971

(Rupees in lakhs)

State	Assistance Sanctioned (Effective)						
	Loans other than for exports	*Loans for exports*	*Under-writing and direct subscriptions*	*Refinance of industrial loans*	*Rafinance of export credits*	*Redis-count*	*Total*
1	2	3	4	5	6	7	8
1. Andhra Pradesh	1,228.5	—	151.5	919.0	—	59.7	2,358.7
2. Assam	—	—	—	19.9	—	—	19.9
3. Bihar	1,020.5	—	246.0	165.7	—	303.3	1,735.5
4. Gujarat	3,727.5	38.6	505.6	1,469.6	—	595.8	6,337.1
5. Haryana	143.2	—	71.0	444.9	—	53.9	713.0
6. Himachal Pradesh	—	—	—	29.6	—	—	29.6
7. Jammu and Kashmir	—	—	—	10.1	—	—	10.1
8. Kerala	207.0	—	49.0	409.2	—	24.7	689.9
9. Madhya Pradesh	98.0	713.7	88.5	384.5	285.7	450.2	2,020.6
10. Maharashtra	2,661.6	1,203.1	696.4	3,360.3	1,470.1	4,131.8	13,523.3
11. Meghalaya	—	—	—	—	—	—	—
12. Karnataka	379.8	—	221.0	603.3	—	622.6	1,826.6
13. Nagaland	—	—	—	—	—	—	—
14. Orissa	880.0	—	44.0	66.6	—	37.0	1,027.6
15. Punjab	—	—	—	175.2	—	2.6	177.9
16. Rajasthan	366.0	62.5	5.0	221.8	251.3	—	906.6
17. Tamil Nadu	1,610.5	179.0	179.6	2,102.7	78.8	1,027.1	5,177.7
18. Uttar Pradesh	774.0	—	179.0	498.9	—	118.9	1,570.8
19. West Bengal	1,512.6	714.0	117.6	1,088.3	125.1	1,498.3	5,055.9
20. Union Territories	200.0	—	292.5	363.8	188.7	64.2	1,109.2
Total:	14,809.2	2,910.9	2,846.7	12,333.4	2,399.7	89,901.1	4,4290.0

Note: (1) Classification based on location of projects assisted in each State. In a few cases, assistance was sanctioned for expansion of existing units/setting up of new units in more than one State; such assistance has been included in the State where the assistance has gone predominantly. In the case of rediscounts, the classification is based on the location of machinery manufacturer/seller.

(2) Figures are exclusive of subscriptions to shares and bonds of financial institutions.

TABLE LXXXVIII (Contd.)

State	Guarantees	Assistance Disbursed							
		Loans (other than for exports)	*Loans for exports*	*Under-writing and deirect subscription*	*Refinance of industrial loans**	*Refinance of export credits**	*Redis-count*	*Total*	*Guarantee executed*
	9	10	11	12	13	14	15	16	17
1. Andhra Pradesh	—	1,055.0	—	106.1	887.8	—	51.2	2,100.1	—
2. Assam	—	—	—	—	24.4	—	—	24.4	—
3. Bihar	—	453.0	—	14.6	199.5	—	259.8	926.9	—
4. Gujarat	601.9	1,840.0	19.0	378.9	1,400.6	—	510.4	4,148.9	—
5. Haryana	8.4	81.0	—	28.6	417.5	—	46.2	573.3	8.4
6. Himachal Pradesh	—	—	—	—	15.7	—	—	15.7	—
7. Jammu and Kashmir	—	—	—	—	34.9	—	—	34.9	—
8. Kerala	—	155.0	—	3.9	397.7	—	21.2	577.8	—
9. Madhya Pradesh	—	42.0	382.2	70.7	364.4	285.7	385.6	1,530.6	—
10. Maharashtra	1,499.0	2,295.1	564.4	611.3	3,206.3	878.2	3,539.3	11,094.6	14,86.5
11. Meghalaya	—	—	—	—	—	—	—	—	—
12. Karnataka	--	271.0	—	156.5	576.2	—	533.3	1,537.0	—
13. Nagaland	—	—	—	—	--	—	—	—	—
14. Orissa	—	142.0	—	43.5	114.4	—	31.7	331.6	—
15. Punjab	—	—	—	—	198.8	—	2.2	201.0	—
16. Rajasthan	278.1	175.0	52.9	4.6	250.3	245.0	—	727.8	278.1
17. Tamil Nadu	172.0	1,257.7	177.5	150.8	1,890.9	45.2	879.8	4,401.9	1.1
18. Uttar Pradesh	295.0	492.8	--	78.6	404.0	—	101.9	1,077.3	295.0
19. West Bengal	241.5	504.9	292.7	88.1	1.107.7	21.1	1,283.4	3,297.9	—
20. Union Territories	—	200.0	--	224.1	321.3	187.4	54.9	987.7	—
Total:	3,095.9	8,964.5	1,488.7	1,960.4	11,812.4	1,662.4	7,700.9	33,589.4	2,069.1

*Inclusive of disbursements in respect of refinance sanctioned by the Refinance Corporation for Industry Ltd. prior to its merger with the I.D.B.I.in September 1964

Reinvestment Plan 1966, the Voluntary Savings Plan 1969, the Children's Gift Plan 1970 and the latest Unit Linked Insurance Plan 1971.

Investments: The total investments of the Trust as on June 30, 1971 were Rs. 105. 14 crores, an increase of Rs. 16.96 crores over the previous year. There has been no significant change in the pattern of investments which continues to reflect the overall investment objectives of the Unit Scheme 1964—safety of capital and a regular and growing income.

TABLE LXXXIX

Pattern of Overall Unit Trust Investment from 1964 to June 30, 1971

(Rs in crores)

Type of investment	*Investment 1964-65*	*%age of total*	*Investment 1970-71*	*%age of total*
1. Ordinary shares	8.67	35.5	39.66	37.7
2. Preference shares	1.76	7.2	13.08	12.4
3. Debentures	9.93	40.7	40.89	38.9
4. Bonds of public operations and Government securities	3.85	15.8	0.45	0.4
5. Treasury bills	—	—	—	—
6. Advance deposits in respect of purchase of debentures	—	—	7.15	6.8
7. Advance call deposits	—	—	*	**
8. Application money	—	—	0.47	0.5
9. Money at call with banks	0.20	0.8	3.43	3.3
Total:	24.41	100.0	105.13***	100.0

Note : *Less than Rs. 5 lakhs

**Less than 0.05 per cent.

***Inclusive of stamp duties, commission, transfer fees etc. capitalized.

Certain guidelines have been provided for the regulation of investments. The Trust's investment in any one company is not to exceed 5 per cent of the Trust's total investible funds or 10 per cent of the securities issued by the company and outstanding, whichever is lower. Not more than 5 per cent of the investible funds can be invested in the initial issues of new industrial undertakings, *i.e.* investments which do not yield any current income.

The expenses and total gross income of the Trust are allocated between the initial and unit capital on the basis of the proportion which each bears to the other at the end of the accounting year, but the expenses charged to unit capital earnings are not to exceed 5 per cent of the earnings. At least 90 per cent of the net income earned by unit capital has to be distributed to unit holders. The income of the Trust is entirely tax free and dividend together with income from certain specified securities upto an amount of Rs. 3,000 to an individual is also free of income tax.

All scheduled banks which have contributed to the initial capital of the Trust act as agents for receiving applications and monies for the purchase of units. The Trust has emerged as one of the leading buyers of debentures since it began operations in June 1964, when investment in debentures accounted for the largest percentage (9.93) of the Trust's total investment. In 1970-71 debentures continued to remain at the top places with Rs. 40.89 crores making 38.9% of total investments for the year. Besides underwriting fresh issues, it has also purchased debentures in the open market, mainly from banks to help them release funds for industrial advances.

The management of the Trust is vested in a board of trustees which is required to 'Act on Business principals, regard being paid to the interest of the unit holder'. There is no explicit reference to the public interest as in the charters of L.I.C., I.F.C., etc. Of the ten trustees, the chairman, executive trustee and four other trustees are nominated by the Reserve Bank, one each by L.I.C. and the State Bank of India, and the remaining two by other contributors to the initial capital. The board has to meet at least once every two months but routine work is carried on by an executive committee, consisting of the Chairman, executive trustee and to other trustees nominated by the Reserve Bank. The Reserve Bank, and not Government, has the power to issue policy directives to the Trust.

The business of the Trust is restricted to sale and purchase of units, with a minimum face value of Rs. 10 and maximum of Rs. 100, investment in securities, and keeping deposits with scheduled banks. It is authorized to borrow monies in any form and from any institution, and from the Reserve Bank for ninety days against trustee securities.

TABLE LXXXX

U.T.I.'s Resources as on June 30, 1971

(Rs in crores)

1. **Capital**	
(a) Initial capital: 1,000 certificates of Rs 50,000 each	5.00
(b) Unit Capital: 9.22,51,443 units at Rs 10/- each	92.25
2. **Reserves and Surplus:**	
(a) Unit premium reserve	.90
(b) Other reserves	.05

Industrial Reconstruction Corporation of India: Several industrial units, especially in the Eastern Region have been facing difficulties and some have even stopped functioning. They have to be rehabilitated because of their importance to the national economy and the needs of employment of a large work force.

At the invitation of the I.D.B.I., the Industrial Reconstruction Corporation of India (I.R.C.I.) was set up in April 1971, under the Companies

Act with headquarters at Calcutta. To begin with, the I.R.C.I. will deal with urgent industrial problems of Calcutta and the Eastern Region especially, problems of rehabilitation and revival of 'sick' and closed industrial units. A major part of its work is likely to be to provide risk and loan capital on soft terms so as to enable the closed units to restart soon.

The Corporation's other activities would include restructuring of companies, labour management problems, change in product mix and related matters. It may also have to encourage, promote, assist and finance merger, amalgamation or reconstruction of industrial undertakings and change of management in appropriate cases and take all such action that will revive industrial development.

The authorized capital of the Corporation is Rs. 25 crores. Its issued capital is Rs. 10 crores and paid up capital Rs. 2.50 crores. This paid up capital is held by I.D.B.I., I.F.C.I., L.I.C.I., I.C.I.C.I., the State Bank of India and the 14 nationalized banks. It will also receive loans from the Government of India on soft terms.

The Corporation has received 85 applications for assistance aggregating Rs. 6.99 crores. Sanctions upto June 1971 amounted to Rs. 1.05 crores for six industrial units, two each in the textile and engineering groups and one each in the mining and foundry industries.

IX. — Foreign Aid and Investment

External financial assistance to industry takes three forms: (1) official assistance, *i.e.* loans from foreign Governments and international institutions, (2) investment by foreign private investors in Indian enterprises, and (3) supplier credits or deferred payments facilities for import of equipment. There is also supply of technical assistance and know-how which goes under the generic label of technical collaboration. Since industrial enterprise is an intrinsically commercial proposition, it does not normally qualify for grants or interest-free loans or cheap long term loans.

Official Assistance: Upto the end of 1969-70, India was sanctioned total external loans of Rs 6.662.5 crores, of which Rs. 4,742.7 crores or more than two-thirds was almost directly for industrial development. The principal sources of loans were U.S.A., U.S.S.R., West Germany, U.K., and the World Bank.

Foreign Investment in India: Total foreign investment in India in the corporate sector (including State enterprises) as of June 1948, which was estimated by the Reserve Bank of India for the first time, amounted to Rs. 265 crores, wholly from private sources. It rose to Rs. 563 crores

TABLE LXXXXI

External Loans for Industrial Development as at the end of March 1970

(Rs in crores)

S. No.	Source	*Steel and steel products*	*Other programmes and projects*	*Total*
1.	I.B.R.D./I.D.A.	106.4	443.0	549.4
2.	U.S.A.	40.1	1,453.5	1,493.6
3.	U.S.S.R.	173.6	569.1	742.7
4.	West Germany	142.1	343.3	485.4
5.	U.K.	69.3	490.3	559.6
6.	Japan	—	266.1	266.1
7.	Czechoslovakia	—	61.0	61.0
8.	Yugoslavia	—	78.2	78.2
9.	Poland	—	36.1	36.1
10.	Switzerland	—	22.8	22.8
11.	Canada	0.8	52.4	53.2
12.	Hungary	—	25.0	25.0
13.	Bulgaria	—	11.2	11.2
14.	Austria	—	13.6	13.6
15.	Belgium	—	24.3	24.3
16.	Denmark	—	6.4	6.4
17.	France	—	124.7	124.7
18.	Italy	—	116.9	116.9
19.	Netherlands	—	54.3	54.3
20.	Sweden	—	16.6	16.6
21.	Norway	—	1.6	1.6
	Total:	532.3	4,210.4	4,742.7

in 1958 and to Rs. 1,543 crores in 1968. This includes small amounts of short term liabilities consisting mainly of debit balances in the company accounts and net unremitted dividends accruing to non-residents on their investments in Rupee Companies.

TABLE LXXXXII

External Debt Servicing

(Rs in crores)

	Amortisation	*Interest payments*	*Total debt servicing*
1	2	3	4
First Plan	10.5	13.3	23.8
Second Plan	55.2	64.2	119.4
Third Plan	305.6	237.0	542.6
1966-67	159.7	114.8	274.5
1967-68	210.7	122.3	333.0
1968-69	268.5	144.0	412.5
1969-70*	282.5	152.2	434.7

*Provisional

The increase over the 20-year period has been steady though not spectacular, nearly six times the 1948 figure. The amount of investment in plantations, the traditional field, has more than doubled from Rs.

TABLE LXXXXIII

Overall External Assistance ended on March 31, 1970

(Rs. in crores)

	Loans and credits repayable in		*Grants*	*Total 2+3+4*	*P.L. 480/665 etc. aid repayable in Rs.*	*P.L. 480 aid repayable in convertible currency*	*Grand total*
	Foreign Currency	*Rupees*					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A. **Authorizations**							
upto the end of Third Plan	3,540.3	287.6	392.0	4,219.9	1,510.9	—	5,730.8
1966-67 to 1969-70	2,586.1	15.0	190.3	2,791.4	687.9	234.2	3,713.5
Total authorizations	6,126.4	302.6	582.3	7,011.3	2,198.8	234.2	9,444.3
B. **Utilizations**							
upto end of the Third Plan	2,493.1	275.5	337.0	3,105.6	1,403.2	—	4,508.8
1966-67 to 1969-70	2,757.2	23.5	246.1	3,026.8	826.8	165.9	4,019.5
Total utilizations	5,250.3	299.0	583.1	6,132.4	2,230.0	165.9	8,528.3

52.2 crores to Rs. 122.5 crores, while that in petroleum went up nearly nine times from Rs. 22.3 crores to Rs. 196.4 crores and constituted the largest single item of investment, manufacturing industries recorded the highest rate, nearly 12 per cent — from Rs. 70.7 crores to Rs. 821.6 crores. Services accounted for Rs. 107.9 crores in 1948 and Rs. 392.7 crores in 1968.

The main contributors were nine countries with the United Kingdom continuing to remain the largest single investor. It accounted for Rs. 625 crores or 40 per cent of the total foreign investments in corporate enterprises together with all suppliers' credits at the end of March 1968 a year earlier, Britain's share was 44 per cent but the decline was due to devaluation of the sterling in November 1967 and a sharp reduction from Rs. 38 crores in 1966-67 to Rs. 2 crores in 1967-68 in the net inflow of capital from this country. Gross private other capital rose to Rs. 41 crores in 1966-67 and declined to Rs. 7 crores the following year.

The U.K. again headed the list in direct investments with Rs. 505 crores or 72 per cent. Its other private capital was Rs. 120 crores which was 25 per cent of the total other capital. Almost, the whole of the foreign investments in plantations in India came from Britain, mainly in branches of sterling tea companies. These accounted for 19 per cent of Britain's total investments and 23 per cent of its direct investments. Manufacturing accounted for 45 per cent of Britain's total investment in India, petroleum 17 per cent and service industries 18 per cent.

Next comes the U.S.A. with Rs. 422 crores or 27 per cent of the total foreign investments. Its investments rose by Rs. 47 crores in 1967-68 as against Rs. 67 crores in the previous year. The decline was mainly due to a fall in drainings on loans from official sources. The net inflow of direct investment and other capital increased by about Rs. 10 crores and Rs. one crore respectively. Of the total investments from U.S.A. at the end of March 1968, direct investments were 26 per cent, loan capital from U.S.AID and EXIM Bank 53 per cent and other capital from private sources 21 per cent. Sixty-four per cent (Rs. 273 crores) of U.S. investments, were in manufacturing industries, Rs. 70 crores in petroleum and Rs. 79 crores in services industries.

As at the end of March 1968, West Germany's investments in India stood at Rs. 100 crores or 7 per cent of all foreign investments in India. The net inflow declined from Rs. 28 crores in the previous year to Rs. 15 crores. The decline was mainly due to reduced gross inflow of supplier's credit and loans. Direct investments from West Germany totalled Rs. 16 crores; Rs. 55 crores came as capital from private sources and Rs. 29 crores from the German Kreditaustalt. About 44 per cent of West Germany's total investments were in the manufacturing industries and the balance in the services industries, mainly shipping and in officially organized financial institutions.

The share of International Institutions, the World Bank and the International Finance Corporation fell by one per cent in 1967-68. This was because of larger amortization payments which more than off set the inflow. The outstanding liabilities to these institutions aggregated Rs. 98 crores and represented 27 per cent of loans and credits from official sources. About 59 per cent of the investments by these institutions were in the service industries — power projects and in financial institutions and the rest in the manufacturing industries mainly iron and steel.

Japanese investments increased by Rs. 17 crores totalling Rs. 82 crores representing 5 per cent of the total foreign investments in India, almost the whole of the net inflow came as suppliers' credit. Similarly, inflows from Italy (Rs. 4 crores) and France (Rs. 2 crores) were suppliers' credits. Among the other countries net inflow from Sweden, Belgium and the Netherlands aggregating Rs. 13 crores was largely suppliers' credits and Rs. 3 crores from Switzerland was mainly in the form of direct investment.

Industry-wise, Rs. 822 crores or 53 per cent of the total investments in India plus all suppliers' credits as at the end of March 1968 went to the manufacturing group. Chemicals and allied products accounted for Rs. 54 crores. Investments in petroleum industries stood at Rs. 196 crores or 13 per cent, Service industries had Rs. 393 crores or 25 per cent of the total investments. Bulk of this money went into construction, utilities and transport and to specialized financial institutions.

TABLE LXXXXIV

Outstanding Foreign Investment by Category

(Rs in crores)

As at end of March	1964	1965	1966	1967 (a)	1967 (b)	1968
I. Direct Investment Capital	565.5	611.3	627.6	639.0	684.6	701.2
1. **Branches**	259.7	262.2	244.1	241.4	273.4	259.1
2. F.C.R.C.	305.8	349.1	383.5	407.6	411.2	442.1
(i) Subsidiaries	239.9	267.6	288.2	305.5	307.8	324.7
(ii) Others	65.9	81.5	95.3	102.1	103.4	117.4
II. Other Capital	328.3	389.8	441.7	578.0	781.3	841.6
1. Equity	53.0	54.7	57.0	63.2	63.2	75.2
2. Creditor	275.3	335.1	384.7	514.8	718.1	766.4
(i) Securities	10.5	10.9	10.9	11.1	11.1	11.3
(ii) Loans	188.1	233.9	268.6	350.4	484.2	495.3
(iii) Suppliers' credits	76.7	90.3	105.2	153.3	222.8	259.8
Total I + II	893.8	1,001.1	1,069.3	1,227.0	1,465.9	1,542.8

TABLE LXXXXV

Long Term Foreign Investments — Industry-Wise (*Rs. in crores*)

	1948 (*June 30*)	1958 (*Dec. 30*)	1968 (*March 31*)	
I. Plantations	52.2	95.1	122.5	
II. Mining	11.5	11.8	9.6	
III. Petroleum	22.3	118.1	196.4	
IV. Manufacturing	70.7	214.9	821.6	
(a) Food, beverages, etc.	10.1	30.4	44.1	
(b) Textile products	28.1	21.1	66.4	
(c) Transport equipment	1.0	5.7	84.8	
(d) Machiurey and machine tools	1.2	5.9	49 6	Rs. 821.6
(e) Metals and metal products	8.0	76.0	155.3	
(f) Electrical goods and machinery	4.8	17.1	64.7	
(g) Chemicals and allied products	8.0	25.9	241.4	
(h) Miscellaneous	9.6	32.8	115.3	
V. Services:	107.9	122.3	392.7	
(a) Trading	43.0	29.6	53.6	
(b) Construction utilities and transport	31.8	51.4	221.9	Rs. 392.7
(c) Financial	15.7	16.6	96.1	
(d) Miscellaneous	17.7	24.3	21.1	
Total	264.6	562.5	1,542.8	

Foreign Collaborations: Between 1957 and 1971, 3,374 foreign collaboration agreements were approved by the Government of India. The U.K. topped the list with 885, followed by the U.S.A. 608, West Germany 524, Japan 307, Switzerland 158, France 154 and others 738.

An industry-wise classification reveals that foreign collaboration approvals for industrial machinery (other than textile machinery) were the highest as 471. Then came electrical equipment, apparatus, components etc. 420, machine tools and accessories 244, transport equipments 227, basic chemicals 187, chemical products 195 and other industries 1,630.

Policy on Collaboration: Jawaharlal Nehru's statement in Parliament on April 6, 1949, remains the authentic exposition of Government's policy on participation of foreign capital in India's economic development. The State recognized the role of foreign capital in supplementing national savings and also in making available to the country the scientific, technical and industrial knowledge, as also the capital equipment which foreign capital brings with it. At the same time, the statement emphasized the need to regulate the scope and mode of foreign capital in the national interest with the object of utilizing it most advantageously.

The conditions under which foreign capital is welcome are:

1. All undertakings, whether Indian or foreign, have to conform to

TABLE LXXXXVI

Country	*Plantations* Private direct capital	*Plantations* Private other capital	*Plantations* Official other capital	*Mining* Private direct capital	*Mining* Private other capital	*Mining* Official other capital	*Petroleum* Private direct capital	*Petroleum* Private other capital	*Petroleum* Official other capital	*Manufacturing* Private direct capital	*Manufacturing* Private other capital	*Manufacturing* Official other capital	*Services* Private direct capital	*Services* Private other capital	*Services* Official other capital	*Total*
Canada	—	—	—	—	—	—	—	—	—	13.0	0.5	1.1	—	—	—	14.6
France	—	—	—	—	1.2	—	—	1.5	—	0.3	14.3	—	0.1	29.0	—	46.4
Germany (West)	—	—	—	—	—	—	—	—	—	16.0	16.4	12.0	0.5	38.3	17.0	100.2
Italy	—	—	—	—	—	—	—	15.0	—	2.4	22.5	—	—	0.2	—	40.1
Japan	—	—	—	—	—	—	—	2.1	—	2.4	42.9	—	—	34.4	0.7	82.5
Switzerland	—	1.1	—	—	—	—	—	—	—	19.9	5.6	—	1.0	1.0	—	28.6
Sweden	—	—	—	—	—	—	—	—	—	8.0	8.0	—	1.6	0.8	—	18.4
United Kingdom	117.5	3.5	—	3.9	2.4	—	89.2	16.8	—	214.8	63.7	—	79.7	34.0	—	625.5
U.S.A.	—	0.1	—	—	—	—	41.7	28.3	—	62.9	24.2	185.8	4.8	35.6	38.9	422.3
Other countries	—	0.3	—		0.8	0.9	—	1.8	—	16.3	27.1	2.2	5.2	7.9	3.7	66.2
International Institutions	—	—	—	—	—	0.4		—	—	—	—	39.3	—	—	58.3	98.0
Total:	117.5	5.0		3.9	4.4	1.3	130.9	65.5	—	156.0	225.2	240.4	92.9	181.2	118.6	1,542.8

1. Direct Capital	701.2
2. Private other capital	481.2
3. Official other capital	360.3
Total	1,542.8

1. Plantations	122.5
2. Mining	9.6
3. Petroleum	196.4
4. Manufacturing	821.6
5. Services	392.7
Total :	1,542.8

TABLE LXXXXVII

Approved Foreign Collaboration Agreements — Country-Wise

No.	Country	1957	1961	1967	June 1971
1.	United Kingdom	17	349	757	885
2.	U.S.A.	6	158	484	608
3.	West Germany	2	146	413	524
4.	Japan	1	81	237	307
5.	Switzerland	—	35	126	158
6.	France	2	37	119	154
7.	Italy	4	34	78	92
8.	East Germany	—	10	60	73
9.	Sweden	1	15	42	55
10.	Netherlands	1	17	42	54
11.	Denmark	—	12	29	38
12.	Czechoslovakia	—	11	28	39
13.	Austria	—	9	25	29
14.	Belgium	—	8	24	28
15.	Canada	—	5	19	22
16.	Poland	—	7	18	18
17.	Hungary	—	3	12	17
18.	Yugoslavia	—	1	12	14
19.	Finland	—	3	4	6
20.	Others	47	183	229	253
	Total:	81	1,124	2,758	3,374

TABLE LXXXXVIII

Approved Foreign Collaboration — Industry-Wise

No.	Industry	Rupee in Crores				
		1957	1961	1967	June 1971	Total
1.	Electrical equipment, apparatus, components, etc.	4	134	351	420	909
2.	Industrial machinery other than textile	6	98	338	471	913
3.	Machine tools and accessories	—	71	201	244	516
4.	Transport equipment	5	86	192	227	510
5.	Basic chemicals	7	95	164	187	253
6.	Chemical products	3	35	159	195	382
7.	Heavy electrical equipments (generation and distribution)	7	79	132	154	372
8.	Iron and steel products	2	60	129	151	342
9.	Instruments	—	29	114	125	268
10.	Textile machinery	1	36	89	107	133
11.	Material handling and construction equipment	1	43	89	107	240
12.	Castings and forgings	1	21	77	80	179
13.	Drugs and pharmaceuticals	4	34	68	82	188
14.	Ceramics and glassware	2	28	58	69	157
15.	Paper and paper products	2	23	45	53	123
16.	Metal and metal products	2	13	39	47	101
17.	Technical consultancy	—	3	29	42	74
18.	Agricultural machinery and implements	1	10	25	51	87
19.	Fertilizers	—	2	10	12	24
20.	Pesticides	1	7	8	12	28
21.	Others	32	217	439	521	1,209
	Total:	81	1,124	2,756	3,357	7,008

the general requirements of the declared industrial policy.

2. Foreign enterprises would be treated on a par with Indian enterprises.

3. Foreign enterprises would be free to remit profits and repatriate capital subject to foreign exchange regulations.

4. In the event of nationalization of a foreign undertaking, fair and equitable compensation would be paid.

5. As a rule, the major interest, ownership and effective control of an undertaking should be in Indian hands.

In the last two decades, India's industrial base has been broadened and its manufacturing sector widely diversified. Also, there has been significant development of indigenous know-how and consequently, Government exercises a greater degree of selectivity. Foreign collaboration/investment is accepted only in fields of relatively high priority and in areas where sophisticated foreign technology would become available to the country. Foreign investment is welcome primarily in manufacturing industries in which Indian enterprise is not fully developed and the products of which could help increase India's foreign exchange resources either by increasing exports or by reducing current inputs.

Since 1968, a Foreign Investment Board has been functioning as a local agency within Government for expeditiously dealing with all matters relating to foreign private investments/collaboration.

Certain recent policy trends in respect of foreign investment and collaboration may be noticed:

(i) Equality: Generally, the policy is to allow minority participation, the usual preference being upto 40 per cent. In very exceptional cases, majority participation may be considered if a project requires sophisticated technology not available in India or involves substantial amount of foreign exchange, which is not available from alternative sources or is essentially export oriented.

(ii) Royalty: Payments, subject to tax, are allowed upto a maximum of 5 per cent. Royalty is calculated on the basis of the ex-factory selling price of the product less landed cost of import content, irrespective of the country of supply Government does not normally allow any minimum guaranteed royalty. No royalty payments are allowed in case of collaboration between a wholly owned subsidiary in India and the parent company.

(iii) Duration: The duration of collaboration agreements is restricted to five years from the date of agreement or five years from the date of commencement of production. However, such a date should not exceed three years after the signing of the agreement, which means a maximum of eight years are allowed. Renewals are considered on the merit of each case.

(iv) Exports: Foreign investment and collaboration are welcomed

liberally in industries which are predominantly export-oriented and where the link with the collaborating party will provide an avenue for export.

In January 1969, policy decisions were taken aimed at increasing exports involving foreign collaboration. Units with substantial export performance to their credit would be allowed, on merits, to expand their production capacity to enable them to step up their exports.

Tax Incentives: The Indian tax laws offer a wide range of tax incentives and special incentives for foreign/non-resident tax payers.

Among incentives for savings and investment are a five-year tax holiday for new industrial enterprises, tax exemption for 'priority' industries, depreciation allowance development rebate, deduction of expenditure on scientific research, export markets development allowance, agricultural development allowance, concessional treatment of inter-corporate dividends, tax-free dividends, wealth tax exemption, tax credit certificates, and exemption of income from provision of technical know-how or services.

Special incentives for the foreign or non-resident tax payers are:

(1) Concessional tax on royalties and technical service fees received by a foreign company.

(2) Exemption from surtax or royalties, interest and technical service fees of foreign companies.

(3) Tax exemption to foreign technicians employed in India.

(4) Tax free interest on loans from specified foreign sources.

(5) Deduction of expenses on education of children outside India.

(6) Exemption of leave passage money.

(7) Exemption for foreign employees for services rendered in India.

(8) Exemption from tax on export income.

(9) Exemption on remittances to India out of foreign profits or capital.

The growing number of collaborations owes a great deal to Government policy, both deliberate and undesigned. By means of import restrictions, the Government has raised profits on home production; and among the foreign firms that wish to share in the protected market, the Government has shown hostility towards those that are entirely owned abroad. So collaboration has become more or less a *sine qua non* for foreign firms wishing to enter the Indian market. Similar hostility towards foreign control reduces the attraction of financial investment in India, and correspondingly increases the advantage of the sale of know-how for royalties.

The object of the Government in encouraging collaboration is fourfold:

(a) By their means we would be replacing the import of goods by the

import of capital and know-how, substituting domestic for foreign labour and materials and thereby saving exchange.

(b) The import of know-how would educate our countrymen in industrial techniques and take the country towards technological self-dependence.

(c) Finance brought into collaborations from abroad would be free from political strings unlike Government grants or loans.

(d) The outflow of returns on imported equity capital would be more flexible than on foreign loans and could be more easily adjusted to our payments circumstances.

Foreign technical help can be obtained in three forms: employment of foreign technical personnel, technical consultancy arrangement, and technical collaboration arrangement. The first two are essentially personal in nature, while the third is institutional. The growing phenomenon noticed since 1957 is the rise in this third form of technical assistance arrangement.

The advantages of a collaboration arrangement are that it enables the country to take a start on its development effort at a higher level of technology than if it were to seek to develop on its own. It thereby enables development not only to take place faster but also helps avoid waste of capital, both as a result of experimentation and of delays in obtaining output from equipment. The agreements have also helped many new *entrepreneurs* to take up industry. The large number of new *entrepreneurs* who have come up in recent years have been greatly helped by their collaboration with well-known foreign firms, often in technically difficult industries. An essential advantage, particularly where the foreign partner also participates in the capital and management of the Indian company, is the adherence to improved management practices and strict quality control that it ensures.

Repetitive Collaboration: On the subject of foreign collaboration, the Committee of Inquiry on Industrial Licensing Policy, has discussed at length what it calls "repetitive collaboration". This phenomenon it says, arises in the form of collaborations being entered into for a product irrespective of the fact that it is already being produced on the basis of another foreign collaboration agreement. As a result, agreements are entered into by a number of Indian firms either with the same foreign party or with a number of foreign parties for the same product.

Analysing the list of foreign collaborations, the Committee has found that 363 categories were involved in repetitive collaborations. Of these, there were 50 products for which collaborations in multiple numbers have been granted in the same year. Also there has been significant difference in the terms of approval in many cases. It gives the example of how in calculating the payment of royalty, several bases have been

accepted in different agreements.

The Committee has enumerated areas of production, mostly of consumer goods, where there is no great advantage in obtaining foreign know-how, much less granting repetitive collaboration. Some of the items are loudspeakers, toys, sports goods, spectacle hinges, ball point pens, tooth paste, readymade garments etc.

Similarly, multiple collaborations have been permitted and renewed in respect of items like domestic refrigerators, radio receivers, transistors, tape-recorders, gramaphones, record changers and cameras. These non-essential goods the Committee concludes, lead to outflow of foreign exchange over long periods of time.

On the question of indigenous production of these items contributing to import substitution, the Committee says it is inconceivable that such goods would have been at all imported in view of the difficult foreign exchange situation. Further not all imports need to be substituted.

The Committee has also been critical of another type of collaboration-items in which production has already been well established and no further major import of technology is necessary.

APPENDIX I

Government of India Resolution on Industrial Policy dated the 6th April, 1948

The Government of India have given careful thought to the economic problems facing the country. The nation has now set itself to establish a social order where justice and equality of opportunity shall be secured to all the people. The immediate objective is to provide educational facilities and health services on a much wider scale, and to promote a rapid rise in the standard of living of the people by exploiting the latent resources of the country, increasing production and offering opportunities to all for employment in the service of the community. For this purpose, careful planning and integrated effort over the whole field of national activity are necessary; and the Government of India propose to establish a National Planning Commission to formulate programmes of development and to secure their execution. The present statement, however, confines itself to Government's policy in the industrial field.

Any improvement in the economic conditions of the country postulates an increase in national wealth; a mere redistribution of existing wealth would make no essential difference to the people and would merely mean the distribution of poverty. A dynamic national policy must, therefore, be directed to a continuous increase in production by all possible means, side by side with measures to secure its equitable distribution. In the present state of the nation's economy, when the mass of the people are below the subsistence level, the emphasis should be on the expansion of production, both agricultural and industrial; and in particular on the production of capital equipment, of goods satisfying the basic needs of the people, and of commodities the export of which will increase earnings of foreign exchange.

The problem of State participation in Industry and the conditions in which private enterprise should be allowed to operate must be judged in this context. There can be no doubt that the State must play a progressively active role in the development of industries, but ability to achieve the main objectives should determine the immediate extent of State responsibility and the limits to private enterprise. Under present conditions, the mechanism and the resources of the State may not permit it to function forthwith in Industry as widely as may be desirable. The Government of India are taking steps to remedy the situation; in particular, they are considering steps to create a body of men trained in business methods and management. They feel, however, that for some time to come, the State could contribute more quickly to the increase of

national wealth by expanding its present activities wherever it is already operating and by concentrating on new units of production in other fields, rather than on acquiring and running existing units. Meanwhile, private enterprise, properly directed and regulated, has a valuable role to play.

On these considerations, the Government have decided that the manufacture of arms and ammunition, the production and control of atomic energy, and the ownership and management of railway transport should be the exclusive monopoly of the Central Government. Further, in any emergency, the Government would always have the power to take over any industry vital for national defence. In the case of the following industries, the State — which in this context, includes Central, Provincial and State Governments and other Public Authorities like Municipal Corporations — will be exclusively responsible for the establishment of new undertakings, except where, in the national interest, the State itself finds it necessary to secure the co-operation of private enterprise subject to such control and regulation as the Central Government may prescribe:—

(1) Coal (the Indian Coalfields Committee's proposals will be generally followed).
(2) Iron and Steel.
(3) Aircraft Manufacture.
(4) Shipbuilding.
(5) Manufacture of telephone, telegraph and wireless apparatus, excluding radio receiving sets.
(6) Mineral Oils.

While the inherent right of the State to require any existing industrial undertaking will always remain, and will be exercised whenever the public interest requires it, Government have decided to let existing undertakings in these fields develop for a period of ten years, during which they will be allowed all facilities for efficient working and reasonable expansion. At the end of this period, the whole matter will be reviewed and a decision taken in the light of circumstances obtaining at the time. If it is decided that the State should acquire any unit, the fundamental rights guaranteed by the Constitution will be observed and compensation will be awarded on a fair and equitable basis.

Management of State enterprise will, as a rule, be through the medium of public corporations under the statutory control of the Central Government, who will assume such powers as may be necessary to ensure this.

The Government of India have recently promulgated a measure for the control by the State of the generation and distribution of electric power. This industry will continue to be regulated in terms of this measure.

The rest of the industrial field will normally be open to private enterprise, individual as well as co-operative. The State will also progressively

participate in this field; nor will it hesitate to intervene whenever the progress of an industry under private enterprise is unsatisfactory. The Central Government have already embarked on enterprises like large river-valley developments, which are multi-purpose projects of great magnitude, involving extensive generation of hydro-electric power and irrigation on a vast scale, and are calculated in a comparatively short time to change the entire face of large areas in this country. Projects like the Damodar Valley Scheme, the Kosi Reservoir, the Hirakud Dam, etc., are in a class by themselves and can stand comparison with any of the major schemes in America or elsewhere. The Central Government have also undertaken the production of fertilizer on a very large scale and have in view other enterprises like the manufacture of essential drugs, and of synthetic oil from coal; many Provincial and State Governments are also proceeding on similar lines.

There are certain basic industries of importance, apart from those mentioned in paragraph 4, the planning and regulation of which by the Central Government is necessary in the national interest. The following industries whose location must be governed by economic factors of all-India import, or which require considerable investment or a high degree of technical skill, will be the subject of a Central regulation and control:

(1) Salt.
(2) Automobiles and tractors.
(3) Prime Movers.
(4) Electric Engineering.
(5) Other heavy machinery.
(6) Machine tools.
(7) Heavy chemicals, fertilizers and pharmaceuticals and drugs.
(8) Electro-chemical industries.
(9) Non-ferrous metals.
(10) Rubber Manufactures.
(11) Power and industrial alcohol.
(12) Cotton and woollen textiles.
(13) Cement.
(14) Sugar.
(15) Paper and newsprint.
(16) Air and Sea Transport.
(17) Minerals.
(18) Industries related to defence.

The above list cannot obviously be of an exhaustive nature. The Government of India, while retaining the ultimate direction over this field of industry, will consult the Governments of the Provinces and States at all stages and fully associate them in the formulation and execution of plans. Besides these Governments, representatives of

Industry and Labour will also be associated with the Central Government in the Industrial Advisory Council and other bodies which they propose to establish, as recommended by the Industries Conference.

Cottage and small-scale industries have a very important role in the national economy, offering as they do scope for individual, village or co-operative enterprise, and means for the rehabilitation of displaced persons. These industries are particularly suited for the better utilisation of local resources and for the achievement of local self-sufficiency in respect of certain types of essential consumer goods like food, cloth and agricultural implements. The healthy expansion of cottage and small-scale industries depends upon a number of factors like the provision of raw materials, cheap power, technical advice, organised marketing of their produce, and, where necessary, safeguards against intensive competition by large-scale manufacture, as well as on the education of the worker in the use of the best available technique. Most of these fall in the Provincial sphere and are receiving the attention of the Governments of the Provinces and the States. The Resolution of the Industries Conference has requested the Central Government to investigate how far and in what manner these industries can be co-ordinated and integrated with large scale industries. The Government of India accept this recommendation. It will be examined, for example, how the textile mill industry can be made complementary to, rather than competitive with the handloom industry, which is the country's largest and best organised cottage industry. In certain other lines of production, like agricultural implements, textile accessories, and parts of machine tools, it should be possible to produce components on a cottage industry scale and assemble these into their final product at a factory. It will also be investigated how far industries at present highly centralised could be decentralised with advantage.

The Resolution of the Industries Conference has recommended that Government should establish a Cottage Industries Board for the fostering of small scale industries. The Government of India accept this recommendation and propose to create suitable machinery to implement it. A Cottage and Small-scale Industries Directorate will also be set up within the Directorate General of Industries and Supplies.

One of the main objectives will be to give a distinctly co-operative bias to this field of industry. During and before the last war, even a predominantly agricultural country like China showed what could be done in this respect, and her mobile industrial co-operative units were of outstanding assistance in her struggle against Japan. The present international situation is likely to lessen to a marked degree our chances of getting capital goods for large-scale industry, and the leeway must be made up by having recourse to small-size industrial co-operatives throughout the country.

The Government, however, recognise that their objective, *viz.*, securing the maximum increase in production, will not be realised merely by prescribing the respective spheres of the State and of private enterprise in Industry; it is equally essential to ensure the fullest co-operation between labour and management and the maintenance of stable and friendly relations between them. A Resolution on this subject was unanimously passed by the Industries Conference which was held in December last. Amongst other things, the Resolution states:—

> "....The system of remuneration to capital as well as labour must be so devised that, while in the interests of the consumers and the primary producers, excessive profits should be prevented by suitable methods of taxation and otherwise, both will share the product of their common effort, after making provision for payment of fair wages to labour, a fair return on capital employed in the industry and reasonable reserves for the maintenance and expansion of the undertaking."

Government accept this Resolution. They also consider that labour's share of the profits should be on a sliding scale normally varying with production. They propose, in addition to the over-all regulation of industry by the State, to establish machinery for advising on fair wages, fair remuneration for capital, and conditions of labour. They will also take steps to associate labour in all matters concerning industrial production.

The machinery which Government propose to set up will function at different levels, central, regional and unit. At the Centre, there will be a Central Advisory Council, which will cover the entire field of industry, and will have under it Committees for each major industry. These Committees may be split up into sub-committees dealing with specific questions relating to the industry, *e.g.*, production, industrial relations, wage fixation, and distribution of profits. The regional machinery under the Provincial Governments will be Provincial Advisory Boards which, like the Central Advisory Council, will cover the entire field of industry within the province; they will have under them the Provincial Committees for each major industry. The Provincial Committees may also be split up into various sub-committees dealing with specific questions relting to production, wage fixation and industrial relations. Below the Provincial Committees will come the Works Committees and the Production Committees attached to each major industrial establishment.

The Works Committees and the Production Committees will be bipartite in character, consisting of representatives of employers and workers only, in equal numbers. All other Committees will be tripartite, with representatives of Government, employers and workers.

Government hope that the machinery proposed will substantially reduce the volume of industrial disputes. In the case of unresolved

conflicts, Government trust that management and labour will, in their own interests and in the larger interests of the country, agree to settle them through recognised channels of conciliation and arbitration, which will be provided by Government. The Industrial Relations Machinery, both at the Centre and in the Provinces, is being strengthened, and permanent Industrial Tribunals are being established for dealing with major disputes.

The Government of India are also taking special steps to improve industrial housing as quickly as possible. A scheme for the construction of one million workers' houses in ten years in under contemplation, and a Housing Board is being constituted for this purpose. The cost will be shared in suitable proportions between Government, employers and labour, the share of labour being recovered in the form of a reasonable rent.

In order to ensure quick decisions on the various matters arising out of the Industrial Truce Resolution, Government are appointing a special officer.

The Government of India agree with the view of the Industries Conference that, while it should be recognised that participation of foreign capital and enterprise, particularly as regards industrial technique and knowledge, will be of value to the rapid industrialisation of the country, it is necessary that the conditions under which they may participate in Indian industry should be carefully regulated in the national interest. Suitable legislation will be introduced for this purpose. Such legislation will provide for the scrutiny and approval by the Central Government of every individual case of participation of foreign capital and management in industry. It will provide that, as a rule, the major interest in ownership, and effective control, should always be in the Indian hands; but power will be taken to deal with exceptional cases in a manner calculated to serve the national interest. In all cases, however, the training of suitable Indian personnel for the purpose of eventually replacing foreign experts will be insisted upon.

The Government of India are fully alive to their direct responsibility for the development of those industries which they have found necessary to reserve exclusively for State enterprise. They are equally ready to extend their assistance to private or co-operative enterprise in the rest of the industrial field, and in particular, by removing transport difficulties and by facilitating the import of essential raw materials to the maximum possible extent. The tariff policy of Government will be designed to prevent unfair foreign competition and to promote the utilisation of India's resources without imposing unjustifiable burdens on the consumer. The system of taxation will be reviewed and readjusted where necessary to encourage saving and productive investment and to prevent undue concentration of wealth in a small section of the

population.

The Government of India hope that this elucidation of their intentions of fundamental aspects of industrial policy will remove all misapprehensions, and they are confident that a joint and intensive effort will now be made by labour, capital and the general public, which will pave the way for the rapid industrialisation of the country.

APPENDIX II

Statement Made by the Prime Minister in the Constituent Assembly of India (Legislative) On 6 April, 1949.

The policy as regards participation of foreign capital has already been announced in broad terms in Government's resolution of the 6th April, 1948. The stress on the need to regulate, in the national interest the scope and manner for foreign capital arose from past association of foreign capital and control with foreign domination of the economy of the country. But circumstances today are quite different. The object of our regulation should therefore be the utilisation of foreign capital in a manner most advantageous to the country. Indian capital needs to be supplemented by foreign capital not only because our national savings will not be enough for the rapid development of the country on the scale we wish, but also because in many cases scientific, technical and industrial knowledge and capital equipment can best be secured along with foreign capital.

In this context, foreign investors would no doubt wish to have some clear indication of our policy on certain matters, like the repatriation of capital, their remittance of profits, and the treatment of foreign enterprise *vis-a-vis* Indian enterprise. I propose to make the policy of Government quite clear in this matter.

In the first place, I would like to state that Government would expect all undertakings, Indian or foreign, to conform to the general requirements of their industrial policy. As regards existing foreign interests, Government do not intend to place any restrictions or impose any conditions which are not applicable to similar Indian enterprise. Government would also so frame their policy as to enable further foreign capital to be invested in India on terms and conditions that are mutually advantageous.

Secondly, foreign interests would be permitted to earn profits, subject only to regulations common to all. We do not foresee any difficulty in continuing the existing facilities for remittance of profits, and Government have no intention to place any restriction on withdrawal of foreign capital investments, but remittance facilities would naturally depend on foreign exchange considerations. If, however, any foreign concerns come to be compulsorily acquired, Government would provide reasonable facilities for the remittance of proceeds.

Thirdly, if and when foreign enterprises are compulsorily acquired, compensation will be paid on a fair and equitable basis as already announced in Government's statement of policy.

Government have stated before that, as a rule, the major interest in ownership and effective control of an undertaking should be in Indian hands. They have also stated that power will be taken to deal with exceptional cases in a manner calculated to serve the national interest. Obviously there can be no hard and fast rule in this matter. Government will not object to foreign capital having control of a concern for a limited period, if it is found to be in the national interest and each individual case will be dealt with on its merits. In the matter of employment of personnel, Government would not object to the employment of non-Indian in posts requiring technical skill and experience, when Indians of requisite qualifications are not available, but they attach vital importance to the training and employment of Indians even for such posts in the quickest possible manner.

I should like to add a few words about British interests in India which naturally form the largest part of foreign investments in India. Although it is the policy of the Government of India to encourage the growth of Indian industry and commerce (including such services like Banking, Shipping and Insurance) to the best of their ability, there is and will still be considerable scope for the investment of British capital in India. These considerations will apply equally to other existing non-Indian interests. The Government of India have no desire to injure in any way British or other non-Indian interests in India and would gladly welcome their contribution in a constructive and co-operative role in the development of India's economy.

APPENDIX III

Government of India
Industrial Policy Resolution
New Delhi, the 30th April, 1956

The Government of India set out in their Resolution dated the 6th April, 1948, the policy which they proposed to pursue in the industrial field. The Resolution emphasised the importance to the economy of securing a continuous increase in production and its equitable distribution, and pointed out that the State must play a progressively active role in the development of industries. It laid down that besides arms and ammunition, atomic energy and railway transport, which would be the monopoly of the Central Government the State would be exclusively responsible for the establishment of new undertakings in six basic industries — except where, in the national interest, the State itself found it necessary to secure the co-operation of private enterprise. The rest of the industrial field was left open to private enterprise though it was made clear that the State would also progressively participate in this field.

2. Eight years have passed since this declaration on industrial policy. These eight years have witnessed many important changes and developments in India. The Constitution of India has been enacted, guaranteeing certain Fundamental Rights and enunciating Directive Principles of State Policy. Planning has proceeded on an organised basis, and the first Five Year Plan has recently been completed. Parliament has accepted the socialist pattern of society as the objective of social and economic policy. These important developments necessitate a fresh statement of industrial policy, more particularly as the second Five Year Plan will soon be placed before the country. This policy must be governed by the principles laid down in the Constitution, the objective of socialism, and the experience gained during these years.

3. The Constitution of India, in its preamble, has declared that it aims at securing for all its citizens —

"JUSTICE, Social, economic and political:

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all;

FRATERNITY assuring the dignity of the nation."

In its Directive Principles of State Policy, it is stated that:—

"The State shall strive to promote the welfare of the people by securing and protecting as effectively as it may a social order in which justice,

social, economic and political, shall inform all the institutions of the national life."

Further that —

"The State shall, in particular, direct its policy towards securing —

(a) that the citizens, men and women equally, have the right to an adequate means of livelihood;

(b) that the ownership and control of the material resources of the community are so distributed as best to subserve the common good;

(c) that the operation of the economic system does not result in the concentration of wealth and means of production to the common detriment;

(d) that there is equal pay for equal work for both men and women;

(e) that the health and strength of workers, men and women, and the tender age of children are not abused and that citizens are not forced by economic necessity to enter avocations unsuited to their age or strength;

(f) that childhood and youth are protected against exploitation and against moral and material abandonment."

4. These basic and general principles were given a more precise direction when Parliament accepted in December, 1954, the socialist pattern of society as the objective of social and economic policy. Industrial policy, as other policies, must therefore be governed by these principles and directions.

5. In order to realise this objective, it is essential to accelerate the rate of economic growth and to speed up industrialisation and, in particular, to develop heavy industries and machine making industries, to expand the public sector, and to build up a large and growing co-operative sector. These provide the economic foundations for increasing opportunities for gainful employment and improving living standards and working conditions for the mass of the people. Equally, it is urgent, to reduce disparities in income and wealth which exist today, to prevent private monopolies and the concentration of economic power in different fields in the hands of small numbers of individuals. Accordingly, the State will progressively assume a predominant and direct responsibility for setting up new industrial undertakings and for developing transport facilities. It will also undertake State trading on an increasing scale. At the same time, as an agency for planned national development, in the context of the country's expanding economy, the private sector will have the opportunity to develop and expand. The principle of co-operation should be applied wherever possible and a steadily increasing proportion of the activities of the private sector developed along co-operative lines.

6. The adoption of the socialist pattern of society as the national objective, as well as the need for planned and rapid development, require that all industries of basic and strategic importance, or in the nature of public utility services, should be in the public sector. Other industries which are essential and require investment on a scale which only the State, in present circumstances, could provide, have also to be in the public sector. The State has therefore to assume direct responsibility for the future development of industries over a wider area. Nevertheless, there are limiting factors which make it necessary at this stage for the State to define the field in which it will undertake sole responsibility for further development, and to make a selection of industries in the development of which it will play a dominant role. After considering all aspects of the problem, in consultation with the Planning Commission, the Government of India have decided to classify industries into three categories, having regard to the part which the State would play in each of them. These categories will inevitably overlap to some extent and too great a rigidity might defeat the purpose in view. But the basic principles and objectives have always to be kept in view and the general directions hereafter referred to be followed. It should also be remembered that it is always open to the State to undertake any type of industrial production.

7. In the first category will be industries the future development of which will be the exclusive responsibility of the State. The second category will consist of industries, which will be progressively State-owned and in which the State will therefore generally take the initiative in establishing new undertakings, but in which private enterprise will also be expected to supplement the effort of the State. The third category will include all the remaining industries, and their future development will, in general, be left to the initiative and enterprise of the private sector.

8. Industries in the first category have been listed in Schedule A of this Resolution. All new units in these industries, save where their establishment in the private sector has already been approved, will be set up only by the State. This does not preclude the expansion of the existing privately owned units, or the possibility of the State securing the co-operation of private enterprise in the establishment of new units when the national interests so require. Railways and air transport, arms and ammunition and atomic energy will, however, be developed as Central Government monopolies. Whenever co-operation with private enterprise is necessary, the State will ensure, either through majority participation in the capital or otherwise, that it has the requisite powers to guide the policy and control the operations of the undertakings.

9. Industries in the second category will be those listed in Schedule B. With a view to accelerating their future development, the State will

increasingly establish new undertakings in these industries. At the same time private enterprise will also have the opportunity to develop in this field, either on its own or with State participation.

10. All the remaining industries will fall in the third category, and it is expected that their development will be undertaken ordinarily through the initiative and enterprise of the private sector, though it will be open to the State to start any industry even in this category. It will be the policy of the State to facilitate and encourage the development of these industries in the private sector, in accordance with the programmes formulated in successive Five Year Plans, by ensuring the development of transport, power and other services, and by appropriate fiscal and other measures. The State will continue to foster institutions to provide financial aid to these industries and special assistance will be given to enterprises organised on co-operative lines for industrial and agricultural purposes. In suitable cases, the State may also grant financial assistance to the private sector. Such assistance, especially when the amount involved is substantial, will preferably be in the form of participation in equity capital, though it may also be in part in the form of debenture capital.

11. Industrial undertakings in the private sector have necessarily to fit into the framework of the social and economic policy of the State and will be subject to control and regulation in terms of the Industries (Development and Regulation) Act and other relevant legislation. The Government of India, however, recognise that it would, in general, be desirable to allow such undertakings to develop with as much freedom as possible, consistent with the targets and objectives of the national plan. When there exist in the same industry both privately and publicly owned units, it would continue to be the policy of the State to give fair and non-discriminatory treatment to both of them.

12. The division of industries into separate categories does not imply that they are being placed in water-tight compartments. Inevitably, there will not only be an area of overlapping but also a great deal of dovetailing between industries in the private and the public sectors. It will be open to the State to start any industry not included in Schedule A and Schedule B when the needs of planning so require or there are other important reasons for it. In appropriate cases, privately owned units may be permitted to produce an item falling within Schedule A for meeting their own requirements or as by-products. There will be ordinarily no bar to small privately owned units undertaking production, such as the making of launches and other light-craft, generation of power for local needs and small scale mining. Further, heavy industries in the public sector may obtain some of their requirements of lighter components from the private sector, while the private sector in turn would rely for many of its needs on the public sector. The same

principle would apply with even greater force to the relationship between large scale and small scale industries.

13. The Government of India would, in this context, stress the role of cottage and village and small scale industries in the development of the national economy. In relation to some of the problems that need urgent solutions, they offer some distinct advantages. They provide immediate large scale employment; they offer a method of ensuring a more equitable distribution of the national income and they facilitate an effective mobilisation of resources of capital and skill which might otherwise remain unutilised. Some of the problems that unplanned urbanisation tends to create will be avoided by the establishment of small centres of industrial production all over the country.

14. The State has been following a policy of supporting cottage and village and small scale industries by restricting the volume of production in the large scale sector, by differential taxation, or by direct subsidies. While such measures will continue to be taken, whenever necessary, the aim of the State policy will be to ensure that the decentralised sector acquires sufficient vitality to be self-supporting and its development is integrated with that of large scale industry. The State will, therefore, concentrate on measures designed to improve the competitive strength of the small scale producer. For this it is essential that the technique of production should be constantly improved and modernised, the pace of transformation being regulated so as to avoid, as far as possible, technological unemployment. Lack of technical and financial assistance, of suitable working accommodation and inadequacy of facilities for repair and maintenance are among the serious handicaps of small scale producers. A start has been made with the establishment of industrial estates and rural community workshops to make good these deficiencies. The extension of rural electrification and the availability of power at prices which the workers can afford will also be of considerable help. Many of the activities relating to small scale production will be greatly helped by the organisation of industrial co-operatives. Such co-operatives should be encouraged in every way and the State should give constant attention to the development of cottage and village and small scale industry.

15. In order that industrialisation may benefit the economy of the country as a whole, it is important that disparities in levels of development between different regions should be progressively reduced. The lack of industries in different parts of the country is very often determined by factors such as the availability of the necessary raw materials or other natural resources. A concentration of industries in certain areas has also been due to the ready availability of power, water supply and transport facilities which have been developed there. It is one of the aims of national planning to ensure that these facilities are steadily

made available to areas which are at present lagging behind industrially or where there is greater need for providing opportunities for employment, provided the location is otherwise suitable. Only by securing a balanced and co-ordinated development of the industrial and the agricultural economy in each region, can the entire country attain higher standards of living.

16. This programme of industrial development will make large demands on the country's resources of technical and managerial personnel. To meet these rapidly growing needs for the expansion of the public sector and for the development of village and small scale industries, proper managerial and technical cadres in the public services are being established. Steps are also being taken to meet shortages at supervisory levels, to organise apparenticeship schemes of training on a large scale both in public and in private enterprises, and to extend training facilities in business management in universities and other institutions.

17. It is necessary that proper amenities and incentives should be provided for all those engaged in industry. The living and working conditions of workers should be improved and their standard of efficiency raised. The maintenance of industrial peace is one of the prime requisites of industrial progress. In a socialist democracy labour is a partner in the common task of development and should participate in it with enthusiasm. Some laws governing industrial relations have been enacted and a broad common approach has developed with the growing recognition of the obligation of both management and labour. There should be joint consultation and workers and technicians should, wherever possible, be associated progressively in management. Enterprises in the public sector have to set an example in this respect.

18. With the growing participation of the State in industry and trade, the manner in which these activities should be conducted and managed assumes considerable importance. Speedy decisions and a willingness to assume responsibility are essential if these enterprises are to succeed. For this, wherever possible, there should be decentralisation of authority and their management should be along business lines. It is to be expected that public enterprises will augment the revenues of the State and provide resources for further development in fresh fields. But such enterprises may sometimes incur losses. Public enterprises have to be judged by their total results and in their working they should have the largest possible measure of freedom.

19. The Industrial Policy Resolution of 1948 dealt with a number of other subjects which have since been covered by suitable legislation or by authoritative statements of policy. The division of responsibility between the Central Government and the State Governments in regard to industries has been set out in the Industries (Development and Regulation) Act. The Prime Minister, in his statement in Parliament

on the 6th April, 1949, has enunciated the policy of the State in regard to foreign capital. It is, therefore, not necessary to deal with these subjects in this resolution.

20. The Government of India trust that this restatement of their Industrial Policy will receive the support of all sections of the people and promote the rapid industrialisation of the country.

SCHEDULE A

1. Arms and ammunition and allied items of defence equipment.
2. Atomic energy.
3. Iron and steel.
4. Heavy castings and forgings of iron and steel.
5. Heavy plant and machinery required for iron and steel production, for mining, for machine tool manufacture and for such other basic industries as may be specified by the Central Government.
6. Heavy electrical plant including large hydraulic and steam turbines.
7. Coal and lignite.
8. Mineral oils.
9. Mining of iron ore, manganese ore, chrome ore, gypsum, sulphur, gold and diamond.
10. Mining and processing of copper, lead, zinc, tin, molybdenum and wolfram.
11. Minerals specified in the Schedule to the Atomic Energy (Control of Production and Use) Order, 1953.
12. Aircraft.
13. Air transport.
14. Railway transport.
15. Shipbuilding.
16. Telephones and telephone cables, telegraph and wireless apparatus (excluding radio receiving sets).
17. Generation and distribution of electricity.

SCHEDULE B

1. All other minerals except "minor minerals" as defined in Section 3 of the Minerals Concession Rules, 1949.
2. Aluminium and other non-ferrous metals not included in Schedule 'A'.
3. Machine tools.
4. Ferro-alloys and tool steels.
5. Basic and intermediate products required by chemical industries such as the manufacture of drugs, dyestuffs and plastics.

6. Antibiotics and other essential drugs.
7. Fertilizers.
8. Synthetic rubber.
9. Carbonisation of coal.
10. Chemical pulp.
11. Road transport.
12. Sea transport.

APPENDIX IV

List of Protected Industries as on March 31, 1970

Sl. No.	*Name of the industry and year of the last report*	*Item nos. in first schedule to the Indian Tariff Act 1934*	*Date of expiry of protective rates of duty*	*Remarks*
1	2	3	4	5
1.	**Dyestuffs**			Subject to half yearly Review.
	(a) Dye-Intermediates* (1970)	28(35), 28 (36) 28(37), 28(38), 28 (39) and 28(40)	31.12.71	First review (January — June and July — December 1969 undertaken)
	(b) Dyes** (1968)	30(1) (a), 30(1) (b), 30 (1) (c), 30 (13), 30 (15) and 30 (16)	—	Subject to periodical review.
2.	**Aluminium*** (1968)	66(a) and 66(1)	31.12.71	—
3.	**Automobiles**** (1968)	(i) 75, 75(1) and 75(3)	—	Review to be undertaken in 1973
		(ii) 75(9), 75(10), 75(11), 75(12) and 75 (14)	—	Review to be undertaken after two years.
4.	**Sericulture*** (1969)	46(a), 46(b), 46(1), 47 and 48	31.12.74	Review to be undertaken every alternate year.

*Items under protective rates of duty.

**Deemed to be protected although these items are under revenue rates of duty.

Source: Eighteenth Annual Report of 1969-70 of Tariff Commission.

APPENDIX V

Index of Industrial Production

(Base 1960 = 100)

Sl. No.	Group	Weights	1968	1969	1970	January-March 1970	January-March 1971	Percentage change in 1969/1968	Percentage change in 1970/1969
1	2	3	4	5	6	7	8	9	10
	General Index	100.00	161.1	172.5	180.8	183.4	186.1	+ 7.1	+ 4.8
I.	Electricity generated	5.37	266.6	301.1	334.1	326.5	337.1	+12.9	+11.0
II.	Mining and quarrying	9.72	144.2	147.4	149.0	157.5	163.2	+ 2.2	+ 1.1
III.	Manufacturing	84.91	156.3	167.2	174.5	N.A.	N.A.	+ 7.0	+ 4.4
	1. Food manufacture	12.09	108.4	137.0	157.6	162.0	167.8	+26.4	+15.0
	(i) Flour milling	1.49	125.4	185.9	230.8	N.A.	N.A.	+48.2	+24.2
	(ii) Sugar	3.58	84.5	149.1	165.3	N.A.	N.A.	+76.4	+10.9
	(iii) *Vanaspati*	1.09	140.4	142.7	154.0	N.A.	N.A.	+ 1.6	+ 7.9
	(iv) Tea	5.12	104.9	108.1	127.0	N.A.	N.A.	+ 3.1	+17.5
	(v) Coffee	0.06	114.4	137.5	129.3	N.A.	N.A.	+20.1	— 6.0
	(vi) Salt	0.10	146.8	150.6	162.7	N.A.	N.A.	+ 2.6	+ 8.0
	2. Beverage and tobacco	2.22	162.7	164.0	174.1	168.1	164.6	+0 .8	+ 6.2
	3. Textile manufacture	27.06	112.5	109.5	109.7	111.2	102.8	— 2.7	—
	(i) Cotton textiles	21.18	111.7	111.7	111.8	N.A.	N.A.	—	+ 0.1
	(ii) Woollen textiles	0.63	144.2	154.2	161.2	N.A.	N.A.	+ 6.9	+ 4.5
	(iii) Jute textiles	3.97	96.4	77.8	85.1	N.A.	N.A.	—19.3	+ 9.4

APPENDIX V (Contd.)

Index of Industrial Production

(Base 1960=100)

Sl. No.	Group	Weights	1968	1969	1970	January March		Percentage change in	
						1970	1971	1969 / 1968	1970 / 1969
1	2	3	4	5	6	7	8	9	10
4.	Footwear manufacture	0.21	192.1	177.2	161.3	143.2	157.2	— 7.8	— 9.0
5.	Wood of cork manufacture	0.80	233.9	256.6	194.0	193.1	173.3	+ 9.7	—25.4
6.	Paper products	1.61	185.0	201.4	216.3	216.2	216.3	+ 8.9	+ 7.4
7.	Leather and fur products	0.43	107.2	88.9	65.9	78.8	59.3	—17.1	—25.9
8.	Rubber products	2.22	202.1	215.5	215.7	207.6	226.7	+ 6.6	+ 0.1
9.	Manufacture of chemicals	7.26	197.4	217.5	235.8	247.5	255.7	+10.2	+ 8.4
10.	Petroleum products	1.34	260.1	280.8	297.3	302.6	296.5	+ 8.0	+ 5.9
11.	Non-metallic minerals	3.85	154.8	175.2	189.2	186.0	205.2	+13.2	+ 8.0
12.	Basic metals	7.38	193.7	209.7	202.5	211.0	214.6	+ 8.3	— 3.4
	(i) Iron and steel	6.23	185.4	201.2	197.3	N.A.	N.A.	+ 8.5	— 6.9
	(ii) Copper manufacture	0.08	70.4	82.2	94.6	N.A.	N.A.	+16.8	+15.1
	(iii) Aluminium manufacture	0.57	400.5	424.0	507.3	N.A.	N.A.	+ 5.9	+19.6
13.	Metal products	2.51	181.2	205.1	213.9	212.5	246.7	+13.2	+ 4.3
14.	Non-electrical machinery	3.38	327.6	349.1	368.3	362.7	402.3	+ 6.6	+ 5.5
15.	Electrical machinery	3.05	277.5	322.4	362.6	343.1	395.4	+16.2	+12.5
16.	Transport equipment	7.77	142.9	135.4	132.1	143.9	133.5	+ 5.2	— 2.4
17.	Miscellaneous industries	1.23	101.7	103.3	118.6	119.7	120.9	+ 1.6	+14.8

APPENDIX VI

Production of Selected Industries

Sl. No.	Industry	Unit	1968	1969	1970	Percentage changes in 1969/1968	Percentage changes in 1970/1969
1	2	3	4	5	6	7	8
I.	**Mining and Quarrying:**						
	1. Coal (Incl. lignite)	m. Tonnes	74.9	79.6	76.7	+ 6.3	— 3.6
	2. Iron ore	m. Tonnes	28.0	29.6	31.4	+ 5.7	+ 6.1
II.	**Food Manufacturing Industries:**						
	3. Flour milling	th. Tonnes	1,371	1,736	2,429	+26.6	+39.9
	4. Sugar	th. Tonnes	2,185	3,868	4,267	+77.0	+10.3
	5. *Vanaspati*	th. Tonnes	474	482	521	+ 1.7	8.1
	6. Tea	m. Kg.	402	395	420	— 1.7	+ 6.3
	7. Coffee	th. Tonnes	58.9	70.4	66.5	+19.5	-- 5.5
	8. Salt	th. Tonnes	4,944	5,174	5,651	+ 4.7	+ 9.2
III.	**Tobacco Industries:**						
	9. Cigarettes	m. Pieces	60,416	59,714	62,930	— 1.2	+ 5.4
IV.	**Manufacture of Textiles:**						
	10. Cotton yarn	m. Kg.	961	951	965	— 1.0	+ 1.5
	11. Cotton cloth (mill-made)	m. Mtr.	4,366	4,168	4,157	— 4.5	— 0.3
	12. Man-made fibres	m. Mtr.	993	894	933	—10.0	+ 4.4
	13. *Rayon*						
	(i) Viscose yarn	th. Tonnes	36.3	36.8	36.1	+ 1.4	— 1.9
	(ii) Staple fibre	th. Tonnes	58.0	58.4	63.3	+ 07	+ 8.4
	(iii) Acetate yarn	Tonnes	1,965	1,987	1,959	+ 1.1	— 1.4
	14. Jute manufacture	th. Tonnes	1,085	894	954	—17.6	+ 6.7

APPENDIX VI (Contd.)

Production of Selected Industries

Sl. No.	Industry	Unit	1968	1969	1970	Percentage changes in 1969/1968	Percentage changes in 1970/1969
1	2	3	4	5	6	7	8
V.	Footwear and Other Wearing Apparel:						
	15. Footwear—western type	th. Pairs	9,601	8,630	7,711	—10.1	—20.6
	16. Footwear—indigenous type	th. Pairs	8,558	7,839	7,739	— 8.4	— 1.3
VI.	Manufacture Of Wood and Cork						
	17. Plywood						
	(i) Tea chests	th. Sq. Mtr.	1.1585	5,910	4,605	—49.0	—32.0
	(ii) Commercial	th. Sq. Mtr.	1,6836	18,085	18,967	+ 7.4	+ 4.9
VII.	Paper and Paper Board:						
	18. Paper and Paper Board	th. Tonnes	646	706	740	+ 9.3	+ 4.8
	19. Newsprint	th. Tonnes	30.8	35.3	37.3	+14.6	+ 5.7
VIII.	Leather and Fur Products:						
	20. Tonned Hides						
	(i) Chrome	th. Nos.	810	789	1315	— 2.6	+66.7
	(ii) Vegetable	th. Nos.	2,848	2,384	969	—16.3	—59.4
	21. Leather cloth	th. Mtr.	12,142	11,526	10,037	— 5.1	—12.9
IX.	Rubber Products:						
	22. Rubber footwear	th. Pairs	57,235	49,289	44,780	—13.9	— 9.1

APPENDIX VI (Contd.)

Production of Selected Industries

Sl. No.	Industry	Unit	1968	1969	1970	Percentage changes in 1969/1968	Percentage changes in 1970/1969
1	2	3	4	5	6	7	8
23.	Tyres						
	(i) Automobiles	th. No.	3,125	3,631	3,661	+16.2	+ 0.8
	(ii) Bicycles	th. No.	24,620	21.611	20,989	—12.2	— 2.9
	(iii) Tractors	th. No.	149	178	186	+19.5	+ 4.5
24.	Tubes						
	(i) Automobiles	th No.	2,988	2,879	3,245	— 3.6	+12.7
	(ii) Bicycles	th. No.	18,190	17,064	15,841	— 6.2	- 7.2
	(iii) Tractors	th. No.	148	160	181	+ 8.1	+13.1
X	Chemical Products:						
25.	Sulphuric acid	th. Tonnes	994	1160	1209	+16.7	+ 4.2
26.	Caustic soda	th. Tonnes	305.9	346.8	361.5	+13.4	+ 4.2
27.	Soda ash	th. Tonnes	396.2	421.9	446.4	+ 6.5	+ 5.8
28.	Liquid chlorine	th Tonnes	100.0	129.4	147.1	+29.4	+13.7
29.	Bleaching powder	th. Tonnes	10.5	15.7	13.7	+49.5	—12.7
30.	Bichromates	th. Tonnes	7.9	8.4	10.8	+ 6.3	+28.6
31.	Nitrogenous fertilizers (N) content	th. Tonnes	506.7	671.9	760.7	+32.6	+13.2
32.	Phosphatic fertilizers P_2O_5 content	th. Tonnes	219.9	216.8	212.0	— 1.4	— 2.2
33.	Alum	Tonnes	490	591	412	+20.6	—30.3
34.	Copper sulphate	Tonnes	1,797	2.107	2,168	+17.3	+ 2.9

APPENDIX VI (Contd.)

Production of Selected Industries

Sl. No.	Industry	Unit	1968	1969	1970	Percentage changes in 1969/1968	Percentage changes in 1970/1969
1	2	2	4	5	6	7	8
35.	Glue	Tonnes	1,861	2,074	2,160	+11.4	+ 4.1
36.	Glycerine (Refined)	Tonnes	10,017	11,000	9,841	+ 9.8	—10.5
37.	Soap	th. Tonnes	216.5	237.5	232.4	+ 9.7	— 2.1
38.	Matches	m. Boxes of 50 sticks	6,116	6,139	4,757	+ 0.4	—22.5
39.	Paints	th. Tonnes	64.7	62.1	65.2	— 4.0	5.0
40.	Power alcohol	K/L	649	793	641	+22.2	—19.2
41.	Industrial alcohol (Rectified spirit)	Littres	180.9	199.8	253.4	+10.4	+26.8
42.	Welding gases						
	(i) Oxygen gas	Cu. Mtr.	34.5	37.6	44.9	+ 9.0	+19.4
	(ii) Acetylene gas	000. Cu. Mtr.	5.646	6,638	6,117	+17.6	— 7.8
43.	Calcium carbide	th. Tonnes	58.6	65.6	69.7	+11.9	+ 6.3
44.	Vat dyes	Tonnes	1.041	1,283	1,234	+23.2	— 3.8
45.	Azo dyes	Tonnes	1,678	1543	1400	— 8.0	— 9.3
46.	Stabilized azoics	Tonnes	185	134	98	—27.6	—45.9
47.	Stabilized vats	Tonnes	107	112	124	+ 4.7	+10.7
48.	Sulphur black	Tonnes	1,501	1,547	1,476	+ 3.1	— 4.6
49.	Napthol	Tonnes	893	873	986	— 2.4	+12.9
50.	P.F. moulding powder	Tonnes	4,619	2,643	3,246	—42.8	+22.8

APPENDIX VI (Contd.)

Production of Selected Industries

Sl. No.	Industry	Unit	1968	1969	1970	Percentage changes in 1969/1968	Percentage changes in 1970/1969
1	2	3	4	5	6	7	8
51	U.F. moulding powder	Tonnes	1.479	1,540	1,680	+ 4.1	+ 9.1
52.	Activated bleaching earth	Tonnes	2,224	2,666	2,809	+19.9	+ 5.4
XI.	Petroleum refinery products:	th. Tonnes	14,948	15.975	17,552	+ 6.9	+ 9.9
XII	Manufacture Of Non-Metallic Mineral Products:						
54.	Refractories	th. Tonnes	657	646	743	— 1.7	+15.0
55.	Insulators	th. Tonnes					
	(i) H.T.		13.3	15.4	17.9	+15.8	+16.2
	(ii) L.T	Tonnes	1,240	1,842	2259	+48.5	+22.6
56.	Cement	th. Tonnes	11,943	13,624	13,955	+14.1	+ 2.4
57.	Asbestos cement sheets	th. Tonnes	2,56.8	2,95.3	3,61.1	+15.0	+22.3
58.	Grinding wheels	Tonnes	3,730	4,577	6.062	+22.7	+32.4
59.	Coated abrasives	th. Tonnes	147	156	162	+ 6.1	+ 3.8
60.	Glazed tiles	Tonnes	14,080	18,672	19,639	+32.6	+ 5.2
61.	Sheet glass	th. Sq. Mtr.	14,859	17,260	14,713	+16.2	—14.8
XIII	Basic Metal Industries:						
62.	Steel ingots	th. Tonnes	6,449	6,476	6,232	+ 0.4	— 3.8

APPENDIX VI (Contd.)

Production of Selected Industries

Sl. No.	Industry	Unit	1968	1969	1970	Percentage changes in 1969/1968	Percentage changes in 1970/1969
1	2	3	4	5	6	7	8
63.	Finished steel	th. Tonnes	4,476	5,072	4,931	+13.3	— 2.8
64.	Aluminium	th. Tonnes	120.1	132.6	161.1	+10.4	+21.5
65.	Copper	Tonnes	9,286	9,751	9,311	+ 5.0	— 4.5
66.	Lead	Tonnes	1,647	1,958	1,861	+18.9	— 5.0
67.	Steel castings	th. Tonnes	47.2	45.9	52.3	— 2.8	+13.9
68.	Antimony	Tonnes	821	637	526	—22.4	—17.4
69.	Zinc	th. Tonnes	20.5	23.9	21.3	+16.6	—94.0
70.	Steel pipe and tubes	th. Tonnes	256.5	298.6	216.7	+16.4	—27.4
XIV.	Manufacture Of Metal Products:						
71.	Screws						
	(i) Wood	m. No.	1.364	1,302	1.453	— 4.5	+11.6
	(ii) Machine	m. No.	417	444	435	+ 6.5	— 2.0
72.	Razor blades	m. No.	758	845	957	+11.6	+13.1
73.	Hurricane lanterns	th. No.	3,210	3,906	3,564	+21.7	— 8.8
74.	Crown corks	m. No.	1,141	1.489	1,225	+30.5	—17.7
75.	Thermos flasks	th. No.	1,987	4,260	11,597	+114.4	+172.2
76.	Wire ropes	Tonnes	13,372	17,432	19,261	+30.4	+10.5
77.	Bright bars	th. Tonnes	34.8	44.3	47.5	+27.3	+ 7.2

APPENDIX VI (Contd.)
Production of Selected Industries

Sl. No.	Industry	Unit	1968	1969	1970	*Percentage changes in* 1969/1968	1970/1969
1	2	3	4	5	6	7	8
XV.	Manufacture Of Machinery:						
78.	Tractors	No.	13,838	18,093	19,931	+30.7	+10.2
79.	Diesel engines						
	(i) Stationary	th. No.	116.4	141.9	68.1	+21.9	—52.0
	(ii) Vehicular	No.	2,434	2,666	3,299	+ 9.5	+23.7
80.	Power driven pumps	th. No.	339	382	279	+12.7	—27.0
81.	Machine tools	Rs. Lakhs	2,529	3,167	4,220	+25.2	+33.2
82.	Ball bearings	m. No.	12.1	13.4	18.1	+10.7	+35.1
83.	Sewing machines	th. No.	423	406	178	— 4.3	—56.2
84.	Typewriters	th. No.	45.7	28.4	38.5	—37.9	+35.6
85.	Twist drills	th. No.	8,463	9,835	10,074	+16.2	+ 2.4
86.	Sugar mill machinery	Rs. Lakhs	1,141	1,256	1456	+10.1	+15.9
87.	Tea processing machinery	Rs. Lakhs	148	149	119	+ 0.7	—20.1
88.	Cement mill machinery	Rs. Lakhs	819	980	814	+19.7	—16.9
XVI.	Manufacture Of Electrical Machinery:						
89.	Power transformers	th. KVA	4,850	5,042	7,609	+ 4.0	+50.9
90.	Electric motors	th. h.p.	1,910	2,076	2,844	+ 8.7	+37.0
91.	Dry batteries	m. No.	409	477	491	+16.6	+ 2.9
92.	Storage batteries	th. No.	870	1,157	1,158	+33.0	—

APPENDIX VI (Contd.)
Production of Selected Industries

Sl. No.	Industry	Unit	1968	1969	1970	Percentage change in 1969/1968	Percentage change in 1970/1969
1	2	3	4	5	6	7	8
93.	Electrical lamps						
	(i) GLS and others	m. No.	84.5	90.3	103.9	+ 6.9	+15.1
	(ii) Fluorescent tubes	th. No.	7,690	10,240	10,483	+33.2	+ 2.4
94.	Electric fans	th. No.	1,466	1,554	1,574	+6.0	+ 1.3
95.	Radio receivers	th. No.	1,360	1,735	1,771	+27.6	+ 2.1
96.	House service meters	th. No.	1,063	1,793	1,844	+68.7	+ 2.8
97.	Domestic refrigerators	th. No.	49.9	48.6	65.4	— 2.6	+34.6
98.	Room air conditioners	th. No.	12.9	12.9	17.0	—	+31.8
	(i) Bare Copper Condition Conductors	Tonnes	1,007	2,242	735	+122.6	—67.2
	(ii) ACSR & A.A.C.	Th. Tonnes	64.9	59.5	6,5.0	— 8.3	+ 9.2
	(iii) VIR & PVC	m. Metres	368	372	430	+ 1.1	+15.6
	(iv) Winding wires	th. Tonnes	8.9	14.6	16.2	+64.0	+11.0
99.	Cables and Wires						
XVII.	Non-Electrical Machinery:						
100.	Lifts	No.	402	523	476	+30.1	— 9.0
101.	Cranes (other than mobile)	Tonnes	6,000	5705	7,101	— 4.1	+24.5
102.	Weighing machinery	Rs. Lakhs	165	163	225	— 1.2	+38.0

APPENDIX VI (Contd.)

Production of Selected Industries

Sl. No	*Group*	*Weight*	1968	1969	1970	*Percentage change in* 1969/1968	1970/1969
1	2	3	4	5	6	7	8
XVIII. Transport Equipment:							
103.	Automobiles	th. No.	79.5	75.7	82.2	— 4.8	+ 8.6
104.	Motor cycles	th. No.	29.4	34.5	43.0	+17.3	+24.6
105.	Scooters	th. No.	36.0	49.3	58.4	+36.9	+18.5
106.	Three wheelers	No.	4,317	5,072	4,229	+17.5	—16.6
107.	Bicycles	th. No.	1,952	1,933	2,049	— 1.0	+ 6.0
108.	Railway wagons	No.	15,248	13,214	8,597	—13.3	—34.9
109.	3 & 4 wheelers	No.	1,641	2,578	3,497	+57.1	+35.6

APPENDIX VII

Contribution of Small Scale Sector in Selected Industries

Industry	Percentage Share in Capacity Established	
	Large Scale Sector	Small Scale Sector
1	2	3
100 Per cent		
1. Clinical thermometers	Nil	100.00
2. Bifurcated rivets	Nil	100.00
3. Paper pins and gem clips	Nil	100.00
4. Measuring tapes (cotton)	Nil	100.00
5. Mechanical toys	Nil	100.00
6. Spindle inserts	Nil	100.00
7. Glass ampoules	Nil	100.00
8. Plaster board	Nil	100.00
9. Chalk crayons	Nil	100.00
10. Graphite crucibles	Nil	100.00
11. Wood-wool	Nil	100.00
12. Pencil sharpeners	Nil	100.00
13. Hair clippers	Nil	100.00
14. Artists' colours, oil, water and poster	Nil	100.00
15. Hole nails	Nil	100.00
16. Black insulating adhesive tape	Nil	100.00
17. Hypodermic needles	Nil	100.00
18. Soldering irons	Nil	100.00
19. Hearing aids	Nil	100.00
20. Spectacle hinges	Nil	100.00
21. Shoe eyelets	Nil	100.00
22. Steel wool	Nil	100.00
23. Animal shoe nails	Nil	100.00
24. Wooden electrical accessories	Nil	100.00
25. Pine oil	Nil	100.00
26. Palm roosa oil	Nil	100.00
27. Telescopic aerials	Nil	100.00
28. Press buttons	Nil	100.00
29. Link clips	Nil	100.00
80 to 99 Per cent		
30. Rolling shutters	5 18	94.82
31. Electric irons	5,45	94.55
32. Gun metal bushes	5.57	94.43
33. Shoe tacks	19.65	89.35
34. Picking sticks	11.56	88.44
35 Wire netting and wire mesh	11.91	88.09
36 Oil pressure stoves	15.21	84.79
37. Metal clasp switches	16.16	83.84
38. Barbed wire	16.67	83.33
39. Fountain pens	18.80	81.20
40. Electric call bells	0.07	99.03
41. Gun metal bush	5.06	94.04
42. Electric brass lamp holders	19.03	80.07
43. Telescopic aerials	14.36	85.64
44. Microscopes	13.94	86.06
45. Snap fastners	19.57	80.43
46. Spectacle frames	18.50	81.50
47. Industrial brushes	9.07	90.93
48. Glass ampoules	4.01	95.99
49. Greese nipples	2.69	97.13

(*Continued*)

APPENDIX VII

Contribution of Small Scale in Selected Industries

Industry	Percentage Share in Capacity Established	
	Large Scale Sector	Small Scale Sector
1	2	3
60 to 79 Per cent		
50. Paints and varnishes	36.35	63.65
51. Domestic wireless receivers (valve type)	29.11	70.89
52. Upholstery coil springs	26.42	73.58
53. Polythene tubing	25.68	74.32
54. Machine screws	42.03	57.07
55. Hair pins	36.39	63.61
56. Pressure cookers	21.48	78.52
57. Stapling machines	37.85	62.15
58. Oil pressure stoves	29.65	70.35
59. Spring washers	26.00	74.00
60. Absorbent cotton	25.00	75.00
61. Switches, plugs, sockets and ceiling roses	38.71	61.29
62. Pressure gauges	21.11	78.89
63. Hollow and solid rivets of aluminium	29.51	70.49
64. Microscopes	23.28	76.72
65. Turpentine oil	38.48	61.52
66. Sealed beams	23.81	76.19
67. Miniature bulbs	28.79	71.21
68. Fountain pens	21.49	78.51
69. Surgical gloves	27.19	72.81
70. Shaping machines	22.69	77.31
40 to 59 Per cent		
71. Low tension insulators	49.14	50.86
72. Ignition switches	52.97	47.03
73. Ball bearings	48.92	51.98
74. Automobile batteries	52.30	47.70
75. Expanded metal (iron and steel)	53.87	46.13
76. Flash light torch cases	56.31	43.69
77. Nuts, bolts and rivets	57.05	42.05
78. Bicycle free wheels	57.42	42.58
79. Automobile radiators	58.40	41.60
80. Steel furniture	40 09	59.01
81. Cast iron pipe and fittings	45.00	55.00
82 Fluorescent tube starter	57.93	42 07
83. Sensiterized feno and ammonia paper	60.93	49.07
84. Oil seals	58.95	41.05
85. Leather board	51.20	48.80
86. Fire extinguishers	48.48	51.52
87. Gang condensers	50.98	49.02
30 to 39 Per cent		
88. Starters	64.75	35.25
89. Scientific instruments	65.57	34.43
90. Safety pins	67.88	32.12
91. Drums and barrels	63.06	36.04
92. Pistons	68.61	31.39
93. Air compressors	69.87	30.13
94. Hydraulic jacks	68.08	31.02
95. P.V.C. rubber insulated cables and wire	67.07	32.03
96. Taps and dies	62.07	37.03

(Continued)

APPENDIX VII

Contribution of Small Scale in Selected Industries

Industry	*Percentage Share in Capacity Established*	
	Large Scale Sector	*Small Scale Sector*
1	2	3
97. Locks	63.00	37.00
98. Fixed carbon resister	61.92	38.02
99. Auto hub drums	61.75	38.25
100. Plastic coated cloth	65.44	34.56
101. Hosiery needles	62.50	37.50
102. Industrial fans and blowers	67.86	32.14
20 to 29 Per cent		
103. Loudspeakers	70.81	29.19
104. Electric motors	71.82	28.18
105. Bicycle chains	72.42	27.58
106. Bicycles	63.89	26.11
107. Domestic refrigerators	76.59	23.41
108. Clocks and watches	78.57	21.43
119. Crown corks	80.00	20.00
110. Pressed glassware	79.76	20.24
111. Electrolytic condensers	72.03	27.70
112. Radio sets and components	72.07	27.03
113. Water meters	79.36	20.64
114. Fuel pumps	75.00	25.00
Up to 20 Per cent		
115. Electric fans	83.24	16.76
116. Pencils	85.65	14.35
117. Piston rings	85.48	14.52
118. Universal joints	98.42	1.58
119. Thermos flasks	96.16	3.84
120. Automobile dynamos	93.05	6.05
121. Bicycle tube valves	85.09	14.10
122. Mica condensers	99.02	0.08
123. Collapsible tubes	87.29	12.71
124. Grinding wheels	80.09	19.01
125. Dehydrated food	84.00	16.00
126. Fire bricks	92.33	7.67
127. Tie rod ends	96.74	3.26
128. Potentio meters	91.87	8.13
129. Voltage regulators	85.39	14.61
130. Brake hoses	83.33	16.67
131. Speedometer cables and castings	94.90	5.10
132. Welding electrodes	96.73	3.27
133. Dusters	94.41	4.59
134. Glass bottles and vials	91.30	8.70

APPENDIX VIII

Progress of the Small Scale Sector in the Registered Factory Segment — 1965

No.	Industry Group	No. of Factories	Fixed Capital (Rs. Lakhs)	Employment	Gross Output (Rs. Lakhs)	Nett Value added (Rs. Lakhs)
1	2	3	4	5	6	7
1.	Dairy products	41	159	1,721	620	48
2.	Canning and preserving fruits and vegetables	64	96	2,582	324	63
3.	Canning and preserving sea foods	25	54	793	162	56
4.	Grain mill products	4,941	1,930	94,259	26,966	2,287
5.	Bakery products	186	73	5,774	988	204
6.	Sugar factories and refineries	1,213	250	23,757	1,306	201
7.	Sugar confectionary, cocoa and chocolate	74	48	2,045	410	72
8.	Miscellaneous food products	4,062	4,129	199,858	38,498	4,482
9.	Distilling, rectifying and blending of spirits (alcohol)	47	135	2,576	425	140
10.	Wire industries	3	2	222	39	6
11.	Breweries and manufacture of malt	5	8	212	94	6
12.	Soft drinks and carbonated water	89	83	2,146	454	226
13.	Tobacco manufactures	1,786	297	90,654	8,197	1,241
14.	Spinning, weaving and finishing of textiles	3,710	1,606	122,358	15,622	2,965
15.	Knitting mills	451	182	10,281	1,870	333
16.	Cordage, tapes and twine	89	43	2,082	260	51
17.	Textiles not elsewhere classified	3,092	1,726	105,817	11,117	1,138
18.	Footwear	91	13	3,124	262	59
19.	Repair of footwear	4	1	128	8	3
20.	Wearing apparel and made up textiles	275	112	11,254	1,400	307
21.	Manufacture of cork and wood except furniture	2,091	769	52,117	3,975	939
22.	Furniture and fixtures	410	241	16,861	1,131	319
23.	Pulp, paper and paper products	297	369	11,363	1,936	382
24.	Printing, publishing and allied industries	2,491	2,100	68,614	4,952	1,906
25.	Tannery and leather finishing	399	220	15,516	4,231	429
26	Leather products except footwear and other wearing apparels	46	38	1,522	135	35
27.	Rubber and rubber products	374	298	24,628	2,087	514
28.	Basic industrial chemicals including fertilizers	335	668	15,639	5,041	760
29.	Vegetable and animal oils and fats (except edible oils)	37	49	1,498	757	49

APPENDIX VIII (Contd.)

Progress of the Small Scale Sector in the Registered Factory Segment — 1965

1	2	3	4	5	6	7
30.	Paints, varnishes and lacquers and miscellaneous chemical products	1,188	1,047	52,806	8,863	1,735
31.	Petroleum refineries	10	—	28	—	—
32.	Coke ovens, miscellaneous products of petroleum and coal	20	34	2,842	363	129
33.	Structural clay products	876	727	47,623	1,371	613
34.	Glass and glass products	226	182	23,668	1,151	368
35.	Pottery, china, earthenware, etc.	125	144	8,133	323	127
36.	Manufacture of cement (hydraulic)	3	5	90	9	3
37.	Non-metallic mineral products not elsewhere classified	1,071	591	37,240	3,048	756
38.	Iron and steel basic industries	1,298	1,485	59,067	7,697	1,521
39.	Non-ferrous basic metal industries	377	249	9,592	2,419	392
40.	Manufacture of metal products except machinery and transport equipment	3,192	2,238	88,850	12,756	2,646
41.	Manufacture of machinery except electrical machinery	3,724	3,865	112,207	11,626	3,127
42.	Manufacture of electrical machinery apperatus, appliances and supplies	850	917	40,060	4,391	1,196
43.	Ship-building and repairing	52	76	4,766	309	146
44.	Manufacture of rail-road equipment	59	74	10,448	557	247
45.	Manufacture of motor vehicles	94	163	9,375	1,137	365
46.	Repair of motors and cycles	1,475	1,237	57,933	4,325	1,379
47.	Manufacture of motorcycles and bicycles	109	136	6,911	955	229
48.	Manufacture of aircraft	19	18	1,208	87	62
49.	Transport equipment not elsewhere classified	224	155	5,385	651	173
50.	Professional, scientific measuring and controlling equipments	1146	118	5,645	458	181
51.	Photographic and other optical goods	94	62	3,414	269	89
52.	Manufacture and repair of watches and clocks	39	46	1,604	141	52
53.	Jewellery and related articles	76	14	1,947	146	55
54.	Fur products except wearing apparel, manufacture of musical instruments and manufacturing industries not elsewhere classified	1,425	1,090	44,754	4,550	1,128
55.	Electric light and power, gas manufacture and distribution	157	461	3,346	494	114
	All Industries:	43,657	30,835	1,528,343	201,408	36,048

CHAPTER IX

TRANSPORT AND COMMUNICATIONS

I. State of Transport Prior to Railway Age

Information is rather scanty about the state of communications and transport in India prior to the Mauryan Era. A clearer picture of the conditions is available on coming down to the Mauryan times when political consolidation and more efficient administration promoted commerce and industry and greater use of communications and transport for internal and foreign trade. A Royal Road, 10,000 *stades* (about 2,400 km.) in length, ran from the North-West Frontier to Pataliputra, with milestones showing distances and by-roads and signposts at every tenth *stade*. Kautilya refers to the maintenance of the King's Highway (*Rajamarga*) at public expense and of State roads and paths for asses, camels, cart-tracks, foot-paths and others. The principal highway from Rajagriha through Sravasti connected Taxila and the frontiers and Central and Western Asia. Apart from these arterial routes, there was a network of other roads providing means for internal communication. The greater economic importance of the southern routes from the point of view of trade connections was stressed by Kautilya. Frequent travel by officials of a centralized and bureaucratic administration contributed to the maintenance of good communications. Land routes over which foreign trade was conducted also acquired a special importance and were naturally more frequently used.

There are many references to early maritime activity and foreign trade. The great activity during the reign of Asoka on colonial enterprises and cultural missions presumes the existence of an adequate sea-going fleet and of facilities for sea voyages. Kautilya refers to ships, both large and small, used for navigation and to the maintenance by the State of boats for hire and to the steps taken to destroy pirate ships. Ships sailed from Tamluk to various ports along the east coast. On the west coast, the sea route took ships to ports along the south-eastern coast of Arabia, in proximity to modern Aden, where Indian traders exchanged their goods for those from the Eastern Mediterranean region sent down the Red Sea.

The picture of internal and external trade and transport becomes fuller by about the early centuries of the Christian Era. The sea-ports and their importance in relation to foreign trade find frequent mention. The port of Berenice, built by Ptolemy Philadelphus (285-246 B.C.) on the Egyptian coast of the Red Sea, became the most important centre for Indian trade.

A brisk foreign trade between India and the West, particularly the Roman Empire, stimulated considerable amount of business activity in a number of ports on the west coast of India, namely, Barygaza (Brigukaccha, Bharugachha or Broach), Sopara, Kalyana, Naura, Tyndis, Muziris (Musiripattanam or Cranganore) and Nelcynda (Nilakantha). After Hippalus discovered the favourable monsoon winds, the Greek and Egyptian traders could make direct voyages from the Gulf of Aden to the Malabar Coast. The discovery of Roman coins over a wide area in South India attests to the spread of Roman trade with India.

The Tamils had taken to the sea quite early and found their way to South East Asia in the first century A.D. Foreign trade extended by the third decade of the sixth century A.D. to China through Indonesia on the east and to Ethiopia and the Homerite country (Arabia) on the west.

Glimpses of the conditions of trade and transport afforded in the accounts of travellers, such as Hiuen Tsang (A.D. 629-645) and Marco Polo (A.D. 1260), point to the attention given to roads and *rest houses.* About 1,700 *serais* were altogether built by Sher Shah with separate lodgings for Muslims and Hindus and with adequate supplies for the needs of travellers and their horses. Jean Baptiste Tavernier's travels in India during 1640-67, in a carriage drawn by bullocks from Kandahar-Multan to Dacca, Surat to Golconda, and thence to Masulipatam, were found by him to be as comfortable as in Europe. During the rains, transport was at a standstill, while during the hot weather when fodder and water were difficult to get, it was kept down to small limits.

The struggle among foreign powers to obtain control over the foreign trade with India shed an interesting sidelight on the significance of communications. The Portuguese opened the route *via* the Cape of Good Hope after Vasco da Gama landed in Calicut and later found ports or open roadsteads along the Malabar Coast where merchants from Sri Lanka or Malacca met those from the Persian Gulf or the Red Sea. Later the Dutch broke the Portuguese monopoly and were in turn ousted by the English.

With the arrival of these foreign powers, there is more information relating to the trade and economic conditions in India. Duarte Barbosa refers to the trade with Calicut and ship-building and ship-repairing activities at Cochin and Dharmapuram. The European merchants could only exploit the trade in the products of the coast and to articles of high value in comparatively small bulk. It was practically impossible to penetrate inland and to draw thence to the west coast the products of the interior. On the east coast there was no port on the surf-beaten line of shore until the Gangetic delta was reached at the head of the Bay of Bengal.

During the first half of the 19th century, roads were non-existent

except where they had been constructed for military purposes. With traffic generally having to be carried over narrow, unmetalled tracks, rendered impassable during the monsoon, the speed of movement was regulated by the capacity of the bullock carts struggling over the paths. Ten miles a day was a fair average. In many parts of the country where carts were unusable, pack-bullocks provided the only means of transport. Under these circumstances, a navigable river was a better means of transportation and trade could be carried on in boats. But, in the politically unsettled state of the country, roads and rivers alike were infested by bands of robbers and these conditions discouraged trade as well as travel.

The economic isolation of even neighbouring districts rendered the famine in one of them impossible to be alleviated by abundant harvests in another. Harvests in some parts of the country at times proved so plentiful that it would not pay to carry grain to markets. The ports were also ill-equipped for the reception and shipment of merchandise. The freight charges round the Cape of Good Hope from Calcutta, Madras and Bombay to London were so high and the duration of the voyage so long that, taking into consideration the charges for internal transit, trade was non-existent except in articles of special demand in which the country had more or less a monopoly and which could stand a long voyage.

It will not be incorrect to state that the conditions of internal trade and communications were mostly the same for centuries past till about the commencement of the railway age. Transporting foreign merchandise to the people at large and persuading the agriculturist to produce goods for overseas markets alike had to wait till the railway system was well advanced by about the decade 1860-70. Even then the Cape route kept the freights high and hampered trade, while the long voyage exposed the cargo of wheat and seeds to the damage caused by weevils. These difficulties were removed by the opening of the Suez Canal and the consequent reduction of the duration of the voyage from about a hundred days or more to about twenty-five days, or even three weeks with faster vessels. This change was of basic importance to Indian trade and it came about at a time when all the ports were connected to the interior by rail. The English merchant houses were now able to supply European manufactures at a cost within the means of the Indian consumer and, at the same time, export Indian products to Europe in good condition and at competitive prices, even as against countries more favourably situated, because of cheap labour of which India had an abundant supply. The result became manifest during the following decade, 1870-80, in a most striking development of trade.

Administrative needs and defence requirements for a power which was rapidly beginning to assume political control of the entire country

called for better communications. The changes connected with these developments are dealt with in the following sections. Although the advent of the railways has been only recent, the economic revolution they brought about in India, as in other countries, entitles them to be considered first. The other forms of transport, *viz.*, road, inland water, coast-wise and ocean shipping and airways are taken up in the same order.

II. Railways

The success which attended the early development of railways in Great Britain showed clearly the many advantages to be derived from the new form of transport in a country of considerable distances, politically still unconsolidated and requiring large scale movement of troops and military stores. It was not until 1845 that applications received by the Court of Directors from private parties for co-operation in opening railways on an extensive scale in different parts of India were sent to the Governor General for report. The Court preferred a cautious approach and a limited scale for the first attempts. Later the Court of Directors, realizing that, without a cheap means of communication, there could be no rapid progress in the country materially or in the efficiency of administration, desired that India should, without unnecessary loss of time, possess the immense advantage of a regular system of railway communication. Reviewing the question in an exhaustive minute in 1853, Lord Dalhousie urged the importance of a speedy and wide introduction of railway communications throughout India. He specially recommended that, in the first instance, a system of trunk lines should be formed, connecting the interior of each Presidency with each other.

The Court of Directors accepted the general plan proposed and, by the end of 1859, the following eight companies were formed for the construction of nearly 8,000 km. of line, with a capital under guarantee of £52,500,000 sterling, namely:

(1) the East Indian Railway;
(2) the Great Indian Peninsula Railway;
(3) the Madras Railway;
(4) the Bombay, Baroda and Central India Railway;
(5) the Eastern Bengal Railway;
(6) the Indian Branch (later the Oudh and Rohilkand) Railway;
(7) the Sind, Punjab and Delhi (later merged in the North-Western) Railway;
(8) the Great Southern of India (later the South Indian) Railway.

Thus was laid the foundation of the system of railways which, radiating from the ports of Calcutta, Bombay and Madras, literally extended throughout the length and breadth of India.

As companies could not be promoted without a minimum return on their capital guaranteed by the Government, a guarantee of 5 per cent was eventually agreed to, coupled with the free grant of all land needed; and the companies, in return, were required to share surplus profits half-yearly with the Government after the guaranteed interest for the half-year had been met, exchange for remittance of interest charges being reckoned at 22 *d* to the rupee, and permit the Government to exercise the closest control over all expenditure and over the management and working of the lines.

Unfortunately, all expectations in regard to profits came to naught because of the heavy outlay on construction built to a standard far in excess of the needs of the time. A committee of the House of Commons in 1857-58, enquiring into the delays, found that, apart from the standard of construction, far higher than required for the conditions of the country or for the actual work the railways were designed to perform, there were such other factors as the conveniences which, though desirable, were unnecessary for the safe or efficient operation of the railways; experimental lines built on double track, the necessity for which did not arise till a generation later; alteration in the routes after work had been actually commenced; and the outbreak of the Great Revolt of 1857 causing the suspension of all works for a time. Consequently, the earnings which might have been sufficient to pay interest charges on a reasonable expenditure proved inadequate to meet the guarantee on the outlay actually incurred. The Government had to make good the deficit.

When the railways failed to earn the guaranteed interest, the deficit to be met by Government became a recurring feature. In view of the increasing demands for guaranteed interest, the whole guarantee system fell into disrepute. Private enterprise still held aloof without a guarantee. The extension of railway communication was not keeping pace with the increasing requirements of the country, and the progress during the preceding ten years hardly averaged 560 km. of new line each year. The guaranteed railways had cost a great deal more than necessary in the absence of any incentive to keep down expenditure; and the Government believed that railways could be more cheaply constructed and more economically worked by direct agency of the State, while money could be borrowed at a lower rate than was paid under the guarantee. In 1869, the Government obtained sanction for the discontinuance of the guarantee system and for the construction of railways by the State.

The guaranteed companies had constructed on a gauge of 5' 6", costing about £10,560 a kilometre; a narrower gauge on 3' 3-3/8" metre gauge might be cheaper. The State Railways accordingly decided to build on the metre gauge. Even then progress was still not rapid enough and in 1875 the amount to be spent annually was raised to Rs. 4 crores. But war and famine reduced the funds available and a great

part of the expenditure was devoted to the conversion, for strategic reasons, of the recently begun lines on the North-West. The continued fall in the gold value of silver had also, by 1879, seriously disturbed the financial position of the Government. Resort had, therefore, again to be made to the companies to construct railways under a guarantee. The system now adopted was distinguished from the old guarantee in that the terms were easier for the Government. The lines thus promoted were: the Indian Midland (1882-85), later merged in the Great Indian Peninsula; the Bengal Nagpur (1883-87); the Southern Mahratta (1882); and the Assam Bengal Railways (1891). The total length of these lines exceeded 6,400 km.

The results of the Government's efforts to attract unaided private enterprise were not encouraging. Of the four companies promoted, the Nilgiri became bankrupt while the Delhi-Ambala-Kalka and the Bengal Central eventually received a guarantee; the fourth — the Bengal and North Western — had the Tirhut Railway leased to it.

In the Indian States, a beginning was made with the Nizam's State Railway, a length of 531.3 km.

Upto the year 1870, when the first change in policy took place, 6,848 km. had been opened for traffic, of which all but 72 km. were on the broad gauge. During the next ten years, that is, upto the end of 1879, 6,822 km. were added to the railway system, the total opened to traffic being 13,670 km., of which 10,560 km. were on the broad gauge, 3,000 km. on the metre gauge and about 108 km. on narrower gauges. The need for a more rapid extension of railways was stressed by the famines of Bihar (1874) and the Deccan (1876). The diversion of a portion of the Famine Insurance Grant for expenditure on railways of a protective or productive nature, being small, did not assist matters and the progress continued to be slow. By 1883, however, the finances of the country had considerably improved and raising the limit of borrowing from Rs. 2 crores to about Rs. 3 crores enabled quicker progress only for a time, as after the Panjdeh incident in 1885, funds had to be diverted to the construction of costly strategic and unremunerative railways on the North-West Frontier. In 1890, the whole available balance of the Famine Insurance Grant was devoted to railway construction and in 1892 half a crore was specially added to capital expenditure to finance new lines of railway and extensions.

In view of the adverse effects of the falling exchange, Government wanted to replace the gold liabilities involved in the guarantee by the introduction of rebate terms and resort again to the companies. Despite the attempts to make the terms as favourable as possible, short of a direct guarantee. one concession after another lapsed. The Indian States provided part or whole of the funds required for railways passing through their territory, in some cases from revenues of the States, in

others from loans to them by the Government or on the Government guaranteeing loans made to a State by a company. The total length constructed in this way amounted to 5,855 km., but these expedients could not be relied on for a steady supply of funds for the development of the railway system.

The easier and cheaper means of transport afforded by the railways, the opening of new lines and the construction of feeder roads added greatly to the business of the trunk lines. The need for the provision of improved facilities to cope with this increasing business had steadily grown. While the demand for new lines all over the country was urgent, little money could be made available for expenditure on open lines, with the result that the latter were starved. Famines, frontier wars and a falling exchange prevented funds being provided for a wider development of the railway system. The expenditure incurred on railways constructed by the agency of guaranteed companies had been kept apart from the Government allotments and was not affected by the exigencies of Government finances. But the continued fall in exchange, however, made it necessary for the Government to take cognizance of all capital liabilities; and since 1896 the expenditure not only by the railways owned by the State but also by those guaranteed by it was included in the railway programme. The capital budget programme necessarily required to be increased and an improvement in exchange as a consequence of closing mints to the free coinage of silver made this possible.

Growth of Railway Traffic, 1853-1900: During 1853-1900, the growth of the railway system and of the traffic carried by it presents, as far as they go, an impressive record. The capital outlay on the railway increased from Rs. 38 lakhs to Rs. 330 crores, and the kilometrage open from 32 to 39,835 km. The gross earnings rose from less than a lakh to over Rs. 31½ crores, and the working expenses from less than half a lakh to more than Rs. 15 crores. The net earnings increased from about half a lakh of rupees to about Rs. 16½ crores.

The volume of passenger and goods traffic registered a no less striking increase. The number of passengers went up from 19 millions in 1871 -- figures for the previous years are not available — to 176 millions in 1900. Passenger earnings during this period advanced from Rs. 202 lakhs to Rs. 895 lakhs. As regards goods traffic, the tonnage moved during the period 1875-1900, increased from 3.5 millions to 42.90 millions. Goods earnings amounted by the year 1900 to Rs. 20 crores, as against Rs. 4.2 crores in 1871.

During the fifteen years 1885-1900, the tonne kilometrage had almost doubled to 10,696 million. Passenger kilometrage had gone up from 5,858 to 11,000 million.

The average freight rate per tonne per kilometre gradually decreased

from 6.75 pies (3.5 *paisa*) in 1875 to 3.65 pies (1.9 *paisa*) in 1900. The average fare per passenger per mile (1.60 km.) — available from 1885 only — remained almost constant in the neighbourhood of 2.50 pies (1.6 *paisa*).

TABLE 1

Railway Development During 1853-1900

	1853	1860	1870	1880	1890	1900
Route kilometrage	32	13,486	7,678	14,778	26,400	39,835
Capital outlay (Rs. lakhs)	38	2,666	9,001	12,857	21,367	32,953
Gross earnings (Rs. lakhs)	0 9	67	667	1,287	2,067	3,154
Working expenses (Rs. lakhs)	0.4	37	363	648	1,030	1,509
Net earnings (Rs. lakhs)	0.5	30	304	639	1,036	1,645
Passenger earnings (Rs. lakhs)	--	—	202 (1871)	457	626	895
Goods earnings (Rs. lakhs)	—	—	420 (1871)	923	1,300	2,038
No of passengers (million)	—	—	19.28 (1871)	49.16	114.08	178.31
No. of tons (million)	—	—	3.54 (1871)	10.39	22.61	42.90
Passenger kilometres (million)	—	—	—	4,664 (1882)	7,691	11,008
Tonne kilometres (million)	—	—	—	4,006	5,739	10,867

Towards the close of the century, the kilometrage open was 22,370 under broad gauge, (5′ 6″) 16,270 under metre gauge (3′ 3-3/8″) and 1,122 under narrow gauges (2′ 6″ and 2′ 0″).

The development in both passenger and goods traffic required more rolling stock, larger stations and goods sheds, additional sidings and stations, and sometimes duplication of the permanent way. The increasing demand for a faster and better train service, if the safety of the travelling public was to receive due consideration, necessitated expenditure on interlocking plant and automatic brakes. The difficulties of the railways in properly conducting their business finally became so great that in 1901 it was decided to adopt the principle of regarding the needs of open lines to meet their growing traffic as the first charge upon the funds available; next, in order, provision was made for the steady prosecution and early completion of lines in progress, preference being given to companies' lines over those

under construction by the agency of the State. After these needs had been met, the claims of new lines were to be considered.

The complexion of the railway systems themselves had undergone by this time a substantial change. The old guaranteed lines had been purchased by the State: the East Indian in 1880; the Eastern Bengal in 1884; the Sind, Punjab and Delhi in 1886; the Oudh and Rohilkhand in 1889; and the Great Indian Peninsula in 1900. Of these, the East Indian and the Great Indian Peninsula were again leased to companies to work, while the others were taken over and worked as State railways. Of the original lines constructed under a guarantee, only two were worked under their old contracts, namely, the Bombay, Baroda and Central India Railway and the Madras Railway. The former was taken over by the State at the end of 1905 and the contract of the latter was terminated in 1907. Many of the railways constructed and for some time worked by the State had been leased to companies or to lines owned and worked by the Indian States.

In purchasing these old guaranteed lines, payment was usually made in the form of terminable annuities which became a charge against the revenues of the railways. As these annuities represented not only interest charges but also the amount payable in redemption of capital, the railway returns appeared worse than they actually were. The great development in traffic, however, counteracted this effect of the annuity charges and annuity payments, and every other liability, and the Government started making a handsome profit from its railway property since 1900-1901. The construction of canals in the Punjab, and the colonization of districts served by them, added so enormously to the traffic of the North-Western Railway as to convert it from an unremunerative line to one yielding large profits. The new kilometrage added from year to year opened up new country and the improvement in the means of communication developed resources and brought new business to the old lines.

Metre Gauge Lines: Although originally the metre gauge lines were built as light railways, the traffic which they were called upon to carry proved so much heavier and developed so much more rapidly than had been anticipated that it was soon found that something more substantial must be provided if they were to fulfil their purpose. To increase the capacity of the metre gauge was a great deal less costly than to convert it to the broad gauge; and, as funds continued scarce, the former course was adopted. These two factors, the cheapness of construction and the expense of conversion to broad gauge, exercised so great an influence on the policy of the Government that it had seldom been found possible to adopt the original idea of converting the metre gauge as soon as the traffic justified the change.

For thinly populated areas, and for short lines of purely local importance, a gauge narrower than the metre gauge was adopted as the most suitable means for developing the resources of the country.

A break of gauge, always a drawback, could, during periods of pressure, such as in the export season, at times of famine, and during extensive military movements, be extremely inconvenient. But the evil had reached such dimensions – at the end of 1900 there were open for traffic 16,270 km of metre gauge railway as compared with 22,370 km on the broad gauge — that the remedy was far from simple.

Report by Special Commissioner for Indian Railways: It had by now become necessary to examine the adequacy of the existing administrative machinery for dealing with the railways. In October 1901, a Special Commissioner for Indian Railways, Mr. (later Sir) Thomas Robertson, was appointed to enquire into, and report on, the general administration and working of Indian Railways. His studies and recommendations emphasized the need for a more effective form of Central organization for Government control of the Indian Railways. In pursuance of his recommendation, the Railway Board was formally constituted in March 1905, and placed outside of, but subordinate to, the Government of India and represented in the Viceroy's Council by the Member in-charge of the Department of Commerce and Industry. The duties assigned to the Railway Board were of two kinds. Its deliberative functions included the preparation of the railway programme of expenditure and the discussion of the larger questions of railway policy and economy affecting all lines, the final authority for decisions in regard to which was still retained by the Government of India. Its administrative duties included the construction of new lines by State agency, the carrying out of new works on open lines, the improvement of railway management with regard to both economy and public convenience, the arrangements for through traffic, settlement of disputes between lines, the control and promotion of staff on State lines and the general supervision over the working and expenditure of companies' lines. The final authority in regard to these administrative duties was delegated, subject to certain restrictions, to the Railway Board.

The change thus inaugurated was the most important that had been made in regard to policy and administration since railways were first introduced into India. The principle of consolidating several railway undertakings under one management, which had been so largely adopted in England and America, was followed in India also; and this added to the great development of business and showed the need for some change in the system of administering the Traffic Department. On the larger railways, the department was split up into 'Commercial' (the procuring of traffic) and 'Transportation' (the handling and haulage of traffic).

Committee on Railway Finance and Organization, 1907: The demand for railway expansion continued, but the expenditure on new constructions fell far short of popular expectations. The Secretary of State for India appointed in 1907 a Committee on Railway Finance and Administration, with Sir John Mackay as Chairman, to examine the country's requirements of new railways and explore means for financing such new constructions. Since 1900 the annual losses on railway account had disappeared and the gain to the State from its railway investment had become a regular feature. The fact of Indian railways being a paying proposition was commented upon by the Mackay Committee which, referring to the inadequacy of rail transport and the urgency of large scale constructions, expressed the view that even a total route mileage of 100,000 (1,61,000 km.) was short of that which would ultimately be found to be necessary in India and 'the steady and even rapid development of the railway system of India should be regarded by Government as one of its important duties'. A sum of £100 million was accordingly recommended to be spent on new constructions and development in the next eight years.

New constructions, however, continued to progress at a much more modest pace, as only about 16,100 km. were added to the railway system during the period 1900-14. This was a good deal less than the increase in the route mileage during the preceding fifteen years. The progress of new construction was nevertheless fairly steady till the developments during the First World War slowed it down.

World War I and After: Indian railways made an important contribution to World War I by diverting as much of their resources as possible to meet the military requirements. The transportation of troops, materials and supplies at short notice cast a heavy burden on the railways. Many sections of railway workshops were also set apart for the production of war equipment. As overseas supplies of railway materials and components from the United Kingdom, the principal supplier, were cut off, arrears of maintenance and renewals accumulated and the railway assets were reduced to a serious state of attrition. At the end of the war, the transport situation had become so grave that all interests concerned with agriculture, trade and industry were unanimous in demanding drastic and emergent steps to rehabilitate the Indian railway system to meet the economic requirements of the country.

At about the same time certain important matters of future railway policy were awaiting early consideration. The contract with the East Indian Railway was due to expire in 1919. Public opinion had consistently declared its preference for State management and was not satisfied with railways in India being managed any longer by the English-domiciled companies with Boards of Directors in London. For one

thing, there appeared no reason why these companies should continue to obtain recruits from overseas for almost all the higher posts when good material was already available in the country. Then there was the question of industrialization of the country and the contribution that the railways could make towards accelerating its pace. Government management, it was held, would tend towards a more positive policy for effective domestic industrial development than the continuation of company management with its natural bias towards its vested interests and maximization of dividends to its shareholders. Also, procurement of railway stores afforded a valuable opportunity for encouraging domestic industries by giving them a degree of preference. It was felt that the company-managed railways, with their Boards of Directors in England, could not be expected to respond readily to such developmental policies, whereas State management would be more sympathetic towards economic advancement in the country. Finally, Government would recognize more readily than the companies the need for improving the conditions and amenities for the third class passengers. The force of public opinion in favour of State-managed railways had gained strength and this, coupled with the impending constitutional changes, led to a decision to postpone any far-reaching changes until a comprehensive enquiry was undertaken into all aspects of the question.

Railway Working Results, 1901-1920: The results of working of Indian railways for select years during 1900-1920 are shown in the Table below:

TABLE II

Results of Working of Indian Railways, 1901-20
(Select Years)

(Rs. in lakh, other figures in million)

		1901	1905	1910	1915-16	1919-20
Route kilometrage		40,768	45,537	51,659	57,668	57,119
Capital outlay	Rs.	33,517	33,852	43,905	53,298	56,633
Gross earnings	Rs.	3,360	4,170	5,114	6,466	8,915
Working expenses	Rs.	1,572	1,995	2,116	3,292	5,066
Net earnings	Rs.	1,788	2,175	2,399	3,174	3,849
No. of passengers		195	248	372	464	520
Passenger kilometres		12,548	15,933	21,617	26,601	33,177
No. tonnes of goods		43.7	56	66	83.3	89.4
Tonnes kilometres		11,548	14,784	19,774	28,056	33,631
Passenger earnings	Rs.	1,007	1,274	1,712	2,099	3,361
Goods earnings	Rs.	2,123	2,021	3,043	3,876	4,712

East India Committee 1920-1921: In 1920 the East India Railway Committee was appointed, with Sir Williams M Acworth as Chairman, to undertake a comprehensive enquiry into questions relating to the management, finance and future control and organization of the railways. The Committee, after a detailed enquiry, recommended by a majority the termination of the contracts with the companies as they fell due. The financial policy of the Government of India, which made no provision either for reserves or for ensuring a steady flow of funds for financing railway construction, improvements, etc., came in for criticism, and, in order to ensure a sound financial policy, keeping in view the developmental needs of the country, and to free the railways from the effects of fluctuations in the general finances of the country, the Committee recommended the separation of the Railway budget from the Central budget of the country. The need for making adequate provision for depreciation and limiting the demands of the State on railway surpluses was also stressed. On a number of other subjects of topical interest, such as Indianization of the higher cadres of the railway services, stores purchases, rating policy, etc., the Committee were generally in agreement with informed public opinion.

The East India Railway Committee's recommendations were accepted by the Government and, by a Resolution passed on September 20, 1924, in the Central Legislative Assembly, Railway finance was separated from the General finances. The Railway Board was reorganized, with a Chief Commissioner and a Financial Commissioner, besides the technical Members. The technical Directorates were also strengthened and expanded. As regards the policy of State management, the Government was already operating three railway systems, namely, the North-Western Railway, the Oudh and Rohilkhand Railway and the Eastern Bengal Railway. On January 1, 1925, the East Indian Railway was taken over by the State and merged with the Oudh and Rohilkhand Railway. On May 1, 1925, on the expiry of the contract, the Great Indian Peninsula Railway Company was also taken over under State management. Thus, by 1929, five major systems — including the Burma Railways taken over in the same year by the Government — were operated under direct State management.

The first six years after the adoption of the convention instituting a separate budget for the Railways witnessed the introduction of a series of important changes in finance and organization. A proper depreciation fund was set up on the basis of the recommendations of a Depreciation Fund Committee. The system of accounts and statistics was examined by Sir Arthur Lowes Dickinson, and a beginning was made towards the separation of accounts from audit. The administrative organization of the individual railways was also overhauled, and in the

case of the larger systems, namely, the North-Western and the East Indian Railways, the divisional system of working replaced the former district system. A more progressive policy designed to improve the conditions of railway labour was adopted. In order to provide a proper machinery for the adjudication of rates disputes, a Rates Advisory Committee was established. Amenities to the travelling public, specially the third class passengers, were steadily extended and improved.

Railway Development during 1924-30: The requirements of railway development received detailed consideration. Programmes of open-line improvements and of new construction were drawn up and large additions were made each year to the route mileage. The capacity of certain intensively worked lines was increased by doubling and quadrupling, and by improved signalling. The plans of rehabilitation and modernization included the improvement of the permanent way, strengthening of bridges, remodelling of yards, new station buildings, more staff quarters, etc. Several of the workshops were extended and their equipment improved. The electrification of the suburban services in Bombay and Madras City areas was undertaken during this period. The total capital outlay incurred on all these items on the State-owned lines during 1924-1932 amounted to Rs. 122.89 crores. The construction of new lines alone amounted to an addition of 8,630 km. at a capital expenditure of about Rs. 44.90 crores.

Railway revenues tended to be bouyant. Gross traffic receipts of the State-owned railways (excluding worked lines) rose from Rs. 100.13 crores in 1924-25 to Rs. 103.73 crores in 1928-29. After meeting the operating expenses and providing for depreciation, the net traffic receipts plus the miscellaneous receipts were sufficient to meet the interest charges in full and the payment of the contribution to the general revenues. As on March 31, 1930, the balances in the Depreciation Fund and the Reserve Fund amounted, respectively, to Rs. 12.24 crores and Rs. 16.35 crores.

Impact of World Depression: The years of prosperity came to an unexpected and abrupt end with the world crisis, the impact of which was felt in 1931. Railway receipts, following the general depression in agriculture, industry and trade, declined steeply, from Rs. 102.70 crores in 1929-30 to Rs. 86.63 crores in 1931-32 and to Rs. 84.43 crores in 1932-33. Retrenchment of expenditure and staff had to be enforced in order to keep down the losses in working. The accumulations in the Reserve Fund were almost wiped out within two years and, besides suspending the payment of the contributions to the General Revenues, the Depreciation Fund had to be raised to the extent of Rs. 30.28 crores since 1931-32 in order to meet the interest charges on capital. It was only in 1937-38 that the situation improved slightly. The deterioration in the

financial results of the railways and the volume of traffic may be seen from the figures given in the following Table.

TABLE III

Results of Working of Indian Government Railways, 1924-1937

(Rs. in crores, other figures in million)

	1924-30 *Average*	1930-35 *Average*	1935-36	1936-37
Financial results	Rs.	Rs	Rs	Rs.
Gross traffic receipts	101.22	88.69	90.65	95.49
Total working expenses	64.71	64.03	64.12	63.38
Net receipts	36.51	24.57	25.53	32.11
Profit (+)/Loss (–)	–8.77	–7.53	–3.99	+1.21

	1924-25	1929-30	1930-31	1931-32	1932-33	1936-37
No. of passengers	576	634	576	502	490	510
Passenger kilometres	32,042	37,100	32,972	28,334	27,600	29,404
Goods tonne,	79	88	84	72	78	87
Tonne kilometres	34,778	35,197	32,367	28,130	30,589	35,050

Effects of World War II and Partition: These depressing financial trends were reversed when, towards the end of the decade, the traffic demands of World War II brought in increased earnings from 1939-40 onwards. These produced in the succeeding years surpluses which more than made up for the loans previously taken from the Depreciation Fund to meet the deficit in the thirties as well as to pay off the contributions then suspended. From 1940-41 onwards all past records of traffic receipts, net earnings and surpluses were broken. These were the results of the equally striking increases in passenger traffic and goods traffic, as shown in Table IV. After payment of the interest charges and the contributions to the General Revenues, the surpluses were quite substantial as evidenced by the balances, as on March 31 1947, of Rs. 23 crores in the Revenue Reserve Fund and Rs. 14.83 crores in the Betterment Fund. These were in addition to the Rs. 108.29 crores of the balance in the Depreciation Fund.

World War II, more protracted than its predecessor, inflicted on the railways for greater wear and tear. The attrition of assets due to intensive use and postponement of renewals, and even of essential maintenance, due in many cases to lack of resources, left Indian Railways in an even more serious state of disrepair than in 1918. When they emerged from the depression by 1937, the railways had before them the problem of overtaking the arrears of maintenance and replacements since 1931. But the outbreak of the Second World War in 1939 interrupted the natural course of achieving this as overseas sources of supply had diverted their production to meet the exigencies of war.

During the first phase of the war, Indian Railways, despite their accumulated deficiencies and difficulties, were called upon to release locomotives, wagons and track material for the Middle East for which the Indian command had the defence responsibility. Over 8 per cent of the metre gauge locomotives and 15 per cent of the metre gauge wagons of the Indian Railways, as well as 6,440 km. of track and 4 million sleepers, were released for military purposes. This necessitated the dismantling of 26 branch lines as well as the curtailment of services on many others. Later, when India had become the base for mounting a major offensive against Japan, the load on the railways increased still further. A large number of railway workshops were diverted to the manufacture of munitions while the maintenance and renewal of railway equipment received little attention. The continuous strain imposed on the railways by demands for heavy military movements brought them almost to breaking point. Considerable arrears of renewals and replacements accumulated and indigenous facilities for rehabilitation were appreciably reduced, or incapacitated by the mobilization of workshop equipment for the war effort.

The results of railway working during 1938-39 to 1946-47 may be seen from the figures for select years in the following Table:

TABLE IV

Financial Results of Working of Class I/Government Railways 1937-38 to 1946-47
(Select years)

(Rupees in crores, other figures in millions)

	1937-38	1938-39	1939-40	1940-41	1944-45	1945-46	1946-47
Gross earnings	Rs. 103.5	103.5	107.8	122.4	226.0	237.3	215.4
Total working expenses	Rs. 66.8	66.8	69.8	70.7	145.6	165.9	175.1
Net earnings	Rs. 34.7	34.7	38.0	51.7	80.5	71.4	40.4
Volume of traffic:							
No. of passengers	499	499	499	542	872	986	1,078
Passenger kilometres		28,917	28,635	30,784	58,526	64,448	65,389
Goods, tonne		85	89	90	99	99	89
Tonne kilometres		35,776	37,923	40,858	45,889	47,163	43,625

A redeeming feature of rail transportation during World War II from the financial point of view was that both the Depreciation and the Reserve Funds were well stocked with large balances to meet future expenditure, as little could be purchased during the war. Another important development during the period covered by the war was that the remaining company-managed railways, about the taking over of which by the State the decision had been postponed during the thirties, were all brought under State management. The acquisition of these British companies' lines afforded an opportunity to use some of the rapidly accumulating sterling balances to good purpose. The Assam Bengal Railway was taken over on January 1, 1942 and merged with

the Eastern Bengal Railway to form the Bengal Assam Railway. The Bombay, Baroda and Central India Railway was acquired by the State on January 1, 1942. The Bengal and North-Western Railway and the Rohilkhand and Kumaon Railways were taken over and brought under State management as the Oudh and Tirhut Railway, as from January 1, 1943. The acquisition of the Madras and Southern Mahratta Railway and the South Indian Railway took place on January 1, 1944. The Bengal Nagpur Railway was also acquired by the State as from October 1, 1944. In regard to both the South Indian and the Bengal Nagpur Railways, the taking over was well ahead of the due dates of the expiry of the contracts, namely, 1945 and 1950.

When the hostilities ceased the railways were faced with major problems not susceptible of immediate solution. Plans for post-war rehabilitation and development were necessarily long-term, but most of these were stultified by the effects of the partition of the country which led to the dismemberment of the North-Western Railway and the Assam Bengal Railway, and the transfer of 11,166 km. and the corresponding equipment to the newly constituted State of Pakistan. In addition to the problems of reorganizing the parts of these systems which fell in Indian territory into self-sufficient units and complicated staff changes, there were the formidable difficulties caused by the mass migration from one Dominion to the other.

The termination of the war in 1945 faced the Indian Railways with problems of large scale rehabilitation, which were aggravated by the enormous increase in the volume of traffic referred to earlier. The railways were handicapped by the fact that a considerable proportion of the locomotives, coaching vehicles and wagons were overage and obsolete. The tract had deteriorated to an extent that necessitated severe speed restrictions. All these factors had their inevitable repercussions on the general efficiency of the transport system: restricting capacity, slowing down of the movement of trains, frequency of engine failures, and making the imposition of priorities essential.

The partition also affected the railway network. The parts of the North-Western Railway and the Bengal Assam Railway which were left on Indian territory had to be integrated into workable units connected with the main system. Some of the lines, as those in Assam, were completely cut off from the rest of the country. The pattern of traffic was also altered by the loss of the port of Karachi and this added to the burden on the Delhi-Bombay route, which consequently stood in need of augmentation of line capacity, improvement of yard facilities, and readjustment of many other essential operational arrangements.

Developments since 1948: The shock of the partition was, however, mostly absorbed by the middle of 1948, but other factors continued to

strain the transport system to the utmost and created several bottlenecks. The traction position called for urgent attention. Large orders were placed with early delivery dates for locomotives, and the timely arrival of these contributed to a noticeable improvement. Simultaneously, efforts were made to set up in the country a modern locomotive manufacturing industry for the Indian Railways designed for an output of 120 locomotives per annum plus spares, boilers and other components. The erection of the factory, the Chittaranjan Locomotive Manufacturing Works, was completed within two years of commencement and it started production in 1951. The Tata Engineering and Locomotive Company, a private company in which Government acquired shares, produced metre gauge locomotives and boilers.

The shortage of coaching vehicles was the main obstacle to affording relief to overcrowded trains. Railway workshops and the unused capacity of the Hindustan Aircraft Factory at Bangalore were utilized to produce more coaching vehicles. A new coach-building factory was built at Perambur, near Madras, to manufacture an improved type of passenger coaches.

Following the attainment of independence, a number of far-reaching changes in railway organization and policy were carried out. The basis of rates and shares was revised thoroughly and the new system was brought into force in January 1948. Passenger fares which used to vary in the past from railway to railway were standardized throughout the country. The revision of freight rates was more difficult, but the necessity for rating reforms had been recognized for some time past. A Post-War Rating Committee had been set up to undertake a detailed examination of existing rates and make recommendations regarding the changes to be introduced. The revised rates which incorporated many of these recommendations on comprehensive lines came into force with effect from October 1, 1948. As a result of these changes, the highly individualistic character of some rates was modified and a telescopic bias was imparted to the class rates — a reform long pressed for by the commercial community. The difference between the rates on railway risk and owner's risk conditions, which was rather wide under the previous classification, was now narrowed down to about the difference between two successive classes. The large number of special rates was considerably reduced and the terminal charges were standardized.

The machinery for the adjudication of rates disputes was also overhauled at the same time. The former Railway Rates Advisory Committee could only recommend; it had no power to enforce its decisions on the railway administrations. Its intervention was not, therefore, invoked by the trading community as frequently as it might have been owing to this limitation. In 1948, the Indian Railways Act was amended

and provision was made for the setting up of a Railway Rates Tribunal with mandatory powers.

It was logical that the political independence of the country should create an urge for self-sufficiency on the part of the railways in the technical field. After a careful assessment of the talent available, it was decided in 1949 to form Design and Consultant Wings from the engineering cadres of railways in India to replace a well-known firm of British consulting engineers, who had given technical guidance for the past three quarters of a century. Indian railways were fortunate in having with them civil and mechanical engineers of high calibre, with aptitude and experience in this line of work. A proper organization of Locomotive, Carriage and Wagon, and Structural and Permanent Way Design and Consultant Wings, manned by Indian officers, was thus set up.

Another important event was the revision in 1949 of the convention separating railway finance from general finance. The original convention of 1924 was intended to be reviewed after three years, but this review had been postponed from time to time for various reasons. The only change brought about during the 25 years since its adoption was the amendment in 1943 of one of the clauses relating to the contribution under which, instead of a specified formula, Government was empowered to fix it from year to year from 1944-45 onwards There were some other features of the old convention which had become out of step with post-war conditions and requirements of the country. A Committee of Parliament went into the whole question and made a number of important recommendations which were generally accepted. According to the revised convention of 1949 contributions to the General Revenues were abolished. Instead, a dividend of 4 per cent per annum on the loan capital invested, as computed annually, was payable to General Revenues. The contribution to the Depreciation Reserve Fund was increased to a minimum of Rs 15 crores a year in recognition of the high costs of replacement at post-war levels of prices. The financial limit for charging to Revenue the cost of minor additions and improvements was raised from Rs. 10,000 to Rs. 20,000 for each individual item. A special provision was also made to cover expenditure on unremunerative projects for improving operational efficiency in excess of Rs. 3 lakhs, such costs being charged to a Railway Development Fund intended to finance passenger amenities, staff welfare works and projects which were necessary but were financially unremunerative att he time of construction. Finally, the scope of the Reserve Fund was limited to securing payment of prescribed dividends and to bridging the gap, should any occur during the period of the convention, namely, five years. The revised convention was an advance on the original convention and provided correctives to any tendency to over-capitalization.

The regrouping of Indian Railways on a rational and geographical basis. which had been the subject of consideration for more than a quarter century, had by 1949 reached a stage where it could no longer be postponed. The cutting up of the North-Western Railway and the Bengal Assam Railway, as a result of the partition of the country, had left certain sections within India, which were, relatively, too small and poorly equipped with workshops and other resources for economical working. After the Federal Financial Integration of the Indian States on April 1, 1950, the railways belonging to these States, varying from 6.44 km. of the Sangli State to 2,254 km. of the Nizam's State, had become parts of the Indian Government Railway System. The reorganization of all these lines to form a smaller number of larger and more resourceful systems was thus imperative in order to bring about improved standards of working, uniformity in operational arrangements and procedures, extension of facilities and reasonable amenities for the travelling and trading public. As the result of detailed and expert consideration of the question and after taking into account the views of the public and the Parliamentary Committee, the Railway Board carried out its plan of reorganizing the integrated Indian Railway system into six administrative and operating zones.

The first regrouped railway to be formed was the Southern Railway on April 14, 1951, comprising the Madras and Southern Mahratta Railway, the South Indian Railway and the Mysore Railway with headquarters at Madras. On November 6, 1951, the Central Railway and the Western Railway were formed with separate headquarters, but both located at Bombay. The former absorbed the Dholpur and the Scindia State Railways as well as the Nizam's State Railway into the Great India Peninsula Railway; and the latter the Saurashtra Railway, the Jaipur Railway, the Rajasthan Railway and the Kutch State Railway into the Bombay, Baroda and Central India Railway. The final phase of the programme of regrouping was completed on April 14, 1952, when the Northern Railway, the North-Eastern Railway and the Eastern Railway were formed. The Northern Railway represented the fusion of the Eastern Punjab Railway, the Bikaner Railway and the Jodhpur Railway within the Allahabad, Lucknow and Moradabad divisions of the East Indian Railway with headquarters at Delhi. The North-Eastern Railway was a case of simple amalgamation of the Oudh and Tirhut Railway and the Assam Railway, with headquarters at Gorakhpur. The remaining divisions of the East Indian Railway were combined with the Bengal Nagpur Railway to form the Eastern Railway with headquarters at Calcutta. The route kilometrage of each regrouped railway is given in Table V.

The executive and administrative organization of the constituent units was left largely undisturbed. In the case of the Southern, Western

TABLE V

Railway	*Route Kilometrage*
Central	8,736
Eastern	9,120
North-Eastern	7,704
Northern	9,667
Southern	9,684
Western	9.062

and North-Eastern Railways, based on the district system of working, three regional headquarters were established for each zone under the control of regional Deputy Heads of Departments for intermediate co-ordination and supervision. On the other railways the constituent units were moulded to the predominating divisional pattern. Only on the Eastern Railway was there a combination of the two, the old East Indian Divisions being retained as such along with the district organization of the Bengal Nagpur Railway controlled through a region at Bilaspur. This policy had the advantage of avoiding any dislocation in the actual working.

Indian railways have had to plan their programmes of rehabilitation, improvement and new construction within the limitations of finance and indigenous resources. New constructions have been few in spite of many demands in the country. The Assam Rail Link and the connection from Deesa to the new port of Kandla, each about 290 km. in length but traversing widely different country, were about the only larger lines to be taken up. Rehabilitation of the major assets and the improvements necessary to obtain optimum performance from the existing resources were given the highest priority in the capital programmes. Most of the lines dismantled during the war were restored and many proposals for new construction intended to provide additional carrying capacity were considered. With effect from 1950-52 the railway programmes were gradually dovetailed into the Five Year Plans referred to later in this section.

Among other developments should be mentioned the celebration by the Indian Railways in 1953 of the completion of 100 years of working. A Centenary Railway Exhibition was organized displaying the old and the new stock, the products of the post-independence enterprise, such as the domestically manufactured locomotives, passenger coaches and wagons, additional passenger amenities, and the contribution of Indian industry towards national self-sufficiency in railway requirements. A commemoration volume entitled "Indian Railway — One hundred Years" was brought out on the occasion.

Representation of interest groups in the Railway Local Advisory Committees had for many years past afforded railway administrations a means of ascertaining public opinion regarding the services rendered

by them to the users. With a view to bringing the machinery more in line with current requirements by providing increased opportunities of associating the public with the railways, the Railway Users Consultative bodies were established during 1953-54 on a federalized pattern at divisional/regional, zonal and national levels representing all important interests.

In view of the prospective developments under the Second Five Year Plan, the division of the Eastern Railway was considered desirable and, accordingly on August 1, 1955, the Railway was bifurcated, the Bengal Nagpur Railway portion with slight adjustments in the Adra District jurisdiction forming the South-Eastern Railway, and the rest of the system upto Mughal Sarai and the Sealdah Division becoming the new Eastern Railway. On January 15, 1958, the North-Eastern Railway was also bifurcated. With a view to providing the eastern-most part of India with a suitable administrative machinery competent to deal promptly and effectively with the immediate as well as the long-term railway problems, it was felt that a full-fledged and viable railway administration with headquarters at Pandu was necessary. The lines comprising the Pandu Region (with the exception of a few branch lines), 2,778 route kilometres in length, was formed into the North-East Frontier Railway. The remaining lines, 6,397 route kilometres in length constituted the North-Eastern Railway. On October 2, 1966, the South Central Railway was formed from out of parts of the Southern Railway and the Central Railway with a route kilometrage of 6,088. There are thus nine railway systems as from 1966.

The freight structure underwent important changes as the result of the recommendations of the Freight Structure Enquiry Committee 1955-57. The risk rates differentiation was abolished and the class rates were placed on a new basis. The Rates Tribunal was reconstituted on the lines of the recommendations of the Committee.

Railway Plans: Indian Railways, which since 1930 had been seen little beyond a shrinkage in their network, entered into a period of dynamism and active development under the impact of the Five Year Plans. The projects included in these Plans involved a steadily increasing demand for rail transport therefor and new facilities, improvements and additional lines for the capacity to be planned and provided in advance so as to be available when required. The expenditure incurred on the three Railway Plans have shown a steady increase as in Table VI.

As the First Five Year Plan for the Railways was more one of rehabilitation after the war, the next two plans afford a better picture of the effect of the national plans on railway development and improvements as will be seen from Table VII.

TABLE VI

Railway Plan Outlay on the Three Plans and During 1966-69

(In Rs. crores)

First Plan, 1951-52 to 1955-56	423.23
Second Plan, 1956-57 to 1960-61	1,043.69
Third Plan, 1961-62 to 1965-66	1,763.65
Annual Plans, 1966-69	734.30

TABLE VII

Second and Third Plan Outlays on Railways

(In crores of Rs.)

	Second Plan	*Third Plan*
Rolling stock	372.62	531.00
Machinery and plant	17.00	30.00
Track renewals	188.84	170.00
Bridge works	24.83	25.00
Ganga Bridge	7.23	--
Traffic facilities	173.44	249.00
Signalling, interlocking, etc	17.31	30.00
Workshops	28.10	32.00
Electrification	53.77	106.00
Staff quarters	37.86	35.00
Staff amenities	11.32	15.00
Passenger and other users, amenities	14.71	15.00
New lines and restoration of dismantled lines	77.83	147.00
Investment in road services	5.34	10.00
Other specified works	30.39	15.00
Miscellaneous	16.90	35.00

The striking increase in the volume of traffic during the period covered by the decade 1956-57 to 1965-66 may be seen from the statistics given below:

TABLE VIII

(Figures in millions)

	Passengers Originating	*Passenger km.*	*Tonnes Originating*	*Tonne km.*
1950-51 (Pre-Plan Year)	1,284	66,517	93.0	44,117
1955-56 (Last year of 1st Plan)	1,527	62,400	115.9	59,576
1960-61 (Last year of 2nd Plan)	1,594	77,665	156.2	87,680
1965-66 (Last year of 3rd Plan)	2,082	96,294	203.1	116,936
1968-69	2,213	106,940	204.0	125,140

In view of the difficulties of coping with anticipated increases in traffic with steam traction in the regions where the coal-fields and the new steel plants are situated, it was recognized that electrification and dieselization had become an operational necessity. Provision was accordingly made for the electrification of a number of sections on the Eastern, South-Eastern, Central and Southern Railways. Apart from the suburban electrification at Calcutta, extension to main line brought the total route kilometrage electrified by the end of 1962-63 to 1,228 (150 km. on the D.C. and 1,078 km. on the 25 kv A.C.) against a total of 2,845 programmed by the end of the Third Plan. The electri-

fication on the Eastern Railway completed in 1962 upto Mughal Sarai and further extended to Allahabad and Kanpur, in addition to a number of sections adjacent to Calcutta. On the South-Eastern Railway electrification of Howrah-Tatanagar, Rourkela-Birmitrapur and other sections in the coal-fields and iron belt has been completed at different stages. The Igatpuri-Bhusaval on the Central Railway and Egmore-Tambaram-Villupuram are the other main projects in the electrification programme.

The extent of diesel traction by the end of 1962-63 is shown by the number of diesel locomotives. These amounted to 219 on the broad gauge and 60 on the metre gauge. In anticipation of the increasing dependence on diesel traction, it has been decided to undertake domestic manufacture of broad gauge main line locomotives at the diesel locomotive manufacturing works which is being set up at Varanasi with a capacity of 150 locomotives per annum. Capacity for the manufacture of electric locomotives is also being created at the Chittaranjan Locomotive Workshops. When these are completed, Indian railways will be more self-sufficient than before in regard to motive power equipment.

The Fourth Five Year Plan, 1969-74, was formulated under conditions which anticipated improvement after the recession in the economy during 1966-69, for which Annual Plans had been drawn up. The basic objectives of the Fourth Plan for the railways are to provide in full for the increase in the traffic expected, to modernize the railway equipment and practices within the limits of the funds available and to convert 1,676 km. of metre gauge to broad gauge in areas of rapid economic development and high traffic potential. Including Rs. 525 crores from the railways' own resources, the total railway outlay for the Fourth Plan has been placed at Rs. 1,525 crores.

The extent of increase in traffic and earnings during 1951-52 to 1968-69 as compared with the pre-plan year 1950-51, may be seen from the following Table.

TABLE IX

Principal Statistics of Government Railways, 1950-51 and 1968-69

(Figures in million/Rs. in crores)

		1950-51	1968-69
Capital-at-charge	Rs.	827.0	3,101.3
Gross traffic receipts	Rs.	263.3	899.11
Working expenses	Rs.	215.7	756.2
Net revenue receipts	Rs.	47.6	142.8
Operating ratio	%	80.0	82.5
Percentage of net revenue receipts % to capital-at-charge		5.75	4.60
No. of passengers originating		1,284	2,213
Passenger kilometres		66,517	106,940
Tonnes originating		93	204
Tonne kilometres		44,117	125,140
No. of stations		5,976	7,032
No. of employees (thousands)		914	1,354

III. Roads And Road Transport

Road Development: Before the commencement of British rule, roadways in the modern sense were practically unknown; and even after its establishment there were few to be found, except within urban limits until 1839 when it was decided to make a strenuous effort to connect Calcutta with Delhi by means of a good metalled road suitable for wheeled vehicles, with bridges over small streams and ferries over the larger rivers. The level plains of India, scoured by streams which for eight months or more in each year were passable without difficulty by the conveyance normally used in the country, offered so small an obstacle to movement between different localities that upto the end of the 18th century there was no demand for prepared tracks. Transport was chiefly effected by pack animals, travelling along village pathways, while travellers could ride or be conveyed in palanquins. As regards the Indian armies, the whole system of military transport and supplies being necessarily adapted to a roadless country, the ordinary requirements under this head during peace differed in no material degree from the requirements of a time of war. This explains the extraordinary promptitude with which the wars of the Indian army had been so frequently entered upon.

The necessity, however, of maintaining a right of way and providing security to life and property on frequented routes was recognized. The Mughal emperors, in particular, concerned themselves to mark out and guard these. Among the routes most used by the caravans which carried traders and goods from one end of India to another were important tracks from Mirzapur to the South (known as the Great Deccan Road), from Agra to Ajmer, and from Allahabad to Jabalpur, which were kept open by the British until after the Great Revolt of 1857. There were also two or three established trade routes from Delhi: one passing through Mathura to Agra and thence *via* Etawah to Allahabad; another running *via* Garhmuktesar, Moradabad, Bareilly, Sandi and Rai Bareilly to Varanasi and on to Patna; a third following the alignment of the present Grand Trunk Road from Delhi to Aligarh.

The roads were generally guarded at intervals by posts (*chaukis*); between *chaukis*, the tracks were marked out by stones, pillars or avenues of trees. The zamindars through whose lands the roads ran provided watchmen (*chaukidars*) and were allowed to levy a small toll on the passing traffic. The *Amalguzars* or magistrates were responsible for all goods stolen within their jurisdiction. The security thus given was probably fairly efficient

In the early period of British rule, the improvement of roads was undertaken chiefly with a view to facilitate postal communication; and until the various sections which afterwards formed the Grand Trunk

Road from Calcutta to Delhi were commenced, the idea of providing for wheeled traction was hardly entertained.

The backwardness of the state of affairs and the lack of proper organization was referred to by Sir John Shore in May 1833 as follows: 'As to roads, except for those within the limits of the civil stations, the 16 miles between Calcutta and Barrackpore is all that we have to boast of'. The main roads were at that time under Military Boards, one for each Presidency, without sufficient powers, either financial or administrative. In October 1839, the Military Board in Calcutta received orders to join up the various roads between Calcutta to Delhi, and to bring them into good order.

The conditions under which the provision and maintenance of roads were then carried out were chaotic. The actual work was effected through their own officers by the provincial authorities; and funds were supplied, sometimes directly by the Supreme Government, and partly by the zamindars and traders directly interested, sometimes by donations from the great nobles and rajas whose territories were traversed by the roads in question. A properly constituted department for carrying out civil public works was formed in the newly annexed Punjab by Captain Napier (afterwards Lord Napier). This was so successful that, in 1854-55, the Military Boards were abolished and the Public Works Departments were organized in all the provinces, under the general control of the Supreme Government exercised through its newly constituted Public Works Secretariat. After this reform, progress in road-making became much more methodical, and the upkeep more satisfactory than had previously been the case.

About the same time the construction of railways began to exercise considerable influence on the function and character of new roads. The extension of the railway system emphasized the need for roads built in a direction which would enable them to feed rather than compete with the newer means of communication; it also aroused greater demand for metalled roads. In 1823, according to Malony, 'the actual amount of local produce was in excess of local consumption', and 'for the prosperity of the country cheap and easy communication for the exportation of the produce was indispensable'. This remark sums up in brief the chief object with which roads were generally constructed in the first half of the 19th century As the harvest season coincided with the drying up of the rivers, there was not much need for bridges except on the great trunk roads. On many of these, permanent bridges have not until recently been provided, ferried or floating bridges doing duty in their place. The majority of the early roads were merely embankments across low-lying places with easily graded approaches to river banks, and cleared and level surfaces elsewhere.

With the introduction of the railways, the conditions changed and there

arose a demand for bridged and metalled communications which would give access to the railway line at all times of the year. In some cases no doubt old routes were to a certain extent superceded by railways as a means of through communication; but on the whole, the influence of railways had been in the direction of stimulating progress in road construction and developing the traffic to be carried.

Another factor in stimulating the construction and upkeep of the roads was the extension of Local Self-Government. Just as the substitution of the provincial Public Works Departments for the old Military Boards, and the financial decentralization effected by Lord Mayo and Lord Lytton, enabled the Government to transfer most of the responsibility for road work to Local Governments, so the extension of Local Self-Government carried the process of decentralization a step further and enabled the Provincial Governments to delegate a large portion of their functions in this respect to District Boards. The extension of local control in each case was accompanied by considerable improvement to local communications. The agency to carry out the work was not the same in all provinces, as in Madras (Tamil Nadu) and Bengal where the District Boards employed independent staff, while elsewhere the road work sanctioned by the local Boards was generally carried out by the Public Works Department.

Most Indian roads used to be metalled with broken brick (*khoa*) or with nodular limestone (*kankar*) in the absence of stone and gravel not procurable over vast areas. The expense of maintenance, somewhat high, increased greatly by the effects of grinding wheels of carts. The cost of building roads varied from place to place according to the nature of the terrain. Costs were high in Bengal owing to the embankments, large amount of drainage to be crossed and inferior road metalling: in Bombay and parts of Madras the hilly character of the country increased the cost of construction. The expenditure on maintenance varied according to the funds available with local bodies and other agencies.

With the constitution of a suitable organization to look after the business of roads building and maintenance, a methodical classification of roads became necessary The classification adopted lasted till 1943 and was as follows:

Class I metalled:

(a) With bridges or ferries and drained throughout

(b) Partially bridged and drained.

Class II unmetalled:

(a) With bridges or ferries and drained throughout.

(b) Partially bridged and drained.

Class III banked and surfaced, but not drained.

Class IV banked but not surfaced: partially bridged and drained.

Class V cleared and partially bridged and drained.

Class VI cleared only.

The road meterage in British India in 1901-1902 under regular maintenance was as follows: total length of metalled roads about 5,955 km., the upkeep of which being divided pretty equally between Government and local authorities; total length of unmetalled roads, about 218,872 km. about five-sevenths of which being maintained by local bodies. In addition to these were a number of roads repaired or reconstructed at irregular intervals, such as during famines, and certain others maintained by the Forest Department or by the owners of large private estates.

Roads and railways together have revolutionized the methods of transport, causing pack animals to be almost entirely displaced by wheeled vehicles throughout the greater part of the country. Tavernier referred to heavy wagons drawn by six pairs of oxen in the plateau and elevated tracks of Central and Southern India, but these had to be steadied with cords at the river banks and other bad places where too often they had to be unloaded. Light springless carts, drawn by a pair of oxen carried travellers 48 km. or 56 km. a day under most favourable circumstances. The commerce of the country, which used to be chiefly dependent on pack animals for transport and on enormous caravans traversing the Peninsula, carrying merchandise from one point to another, was to be taken over by railways, pack transport being limited to regions where railways had not come in, such as in sandy and hilly tracts. In several instances well built roads have been wholly or partly utilized for the purpose of light railways and tramways.

As roads came to be looked upon as a subject of local interest and importance only, the Government of India Act 1919 deemed roads to be purely a provincial subject and the Central Government ceased to be concerned with road development except for roads of strategic importance and for certain arterial roads, in the then existing princely States, such as the Bombay-Indore-Agra Road. The result was that little attention was paid to inter-State roads or roads required for developed areas.

Indian Road Development Committee 1927: The end of World War I saw the advent and development of motor transport in India and the need was felt for better roads capable of withstanding the centuries old bullock cart traffic and the new form of transport as the existing roads could ill resist the combined disintegrating action of such traffic. On a resolution passed by both chambers of the Indian Central Legislature in 1927, a committee was appointed to examine and report on the question of road development in India with M. R. Jayakar as Chairman. The committee observed in its report that "until recently, there had been a lack of system and continuity in road programmes" which had

to be corrected in view of the "demand for an extended range of movement and for a coherent system" which would make "the broken and disconnected lengths into a continuous whole".

The lack of bridges and crossings was a serious obstacle to traffic of all kinds and, apart from the inconvenience, waste of time and possible damage to bullocks, by seriously reducing even in the dry season the load the bullock cart could carry without difficulty, tended to diminish the economic value of the road as a whole. As for motor transport, regular services would not be satisfactorily established on an unbridged road. The deterioration of the road surfaces was being aggravated by the operation of motor transport. The condition of the subsidiary roads connecting villages also called for special consideration and relief.

The Committee concluded that the development of the road system was desirable, especially so because it would "make for the economic, social and political advancement of the rural population, on which the future of the nation so much depends." As road development was passing beyond the capacity of Provincial Governments and local bodies, and was becoming a national interest, the Committee recommended that it might to some extent be a proper charge on Central revenues. The most important recommendation affecting road development was that an additional duty of 2 annas per gallon (12.5 *paisa* per 4.5 litre) should be levied by the Centre on motor spirit for the specific purpose of road development and that the proceeds should be credited to a separate Road Development Fund. The Committee considered that the balances in the Fund should not be allowed to lapse at the end of each year as a road programme was required to be planned and executed for a number of years and for this purpose continuance of funds was to be assured.

This recommendation was accepted by the Government and the Central Road Fund came into existence on March 1, 1929. The additional petrol duty of 2 annas (12.5 *paisa*) was raised to 2½ annas per gallon (15.6 *paisa* per 4.5 litre) in 1931. The setting up of this Fund represents the first important step taken by the Central Government to promote road development in India.

The procedure for financing road development from the Central Road Fund required that 20 per cent of the annual revenue of the Fund should be retained as a Central Reserve in the Fund from which grants were given by the Government of India for meeting expenditure on the administration of the Fund, road experiments and research, and suitable road and bridge schemes in States (provinces), such as inter-State roads and bridges on the borders of States. The balance of 80 per cent was allocated to the various States on the basis of the actual petrol consumption in the respective States. A third division was instituted in the Fund in April 1950, called the Special Reserve, to which contributions

were to be made from outside the Central Road Fund proper for the financing of specified road projects.

With the commencement of the world-wide depression in 1930-31, the financial resources of the Central and Provincial Governments were adversely affected and funds for road development almost dried up. Indeed there was a time when the Road Fund became the main source of finance for road development. The deterioration of the roads became so serious that, even for normal maintenance needs in some instances, the balances in the Road Fund had to be drawn upon.

Nagpur Plan: In the meantime, the importance of a National Trunk Road system was coming to be recognized and discussions between the Provincial and Central Governments on making a start on a skeleton system led to the Government of India proposing a provision in the Constitution Act then under contemplation to permit national trunk roads being treated in some measure as a federal charge. Actually, however, because of the emphasis on provincial autonomy, no provision was made in the Government of India Act 1935, with reference to the Central interest in the development of arterial roads.

With the outbreak of World War II, the existing short-comings of the road system were brought home forcibly on the Governments. Intensive efforts were made to develop roads of military importance not merely in the operational areas but generally all over India, financed largely by substantial grants from the Defence Service Estimates. Defence requirements and the strategic importance of an efficient arterial road system during the emergency emphasized the need for this more than ever. It was also realized that the roads could be maintained satisfactorily only if the Centre took them over for development and maintenance.

In view of these considerations, the Government of India convened a Conference of Provincial and State Chief Engineers at Nagpur in December 1943, to consider the problem of post-war road development in India. The most important recommendations reached by the Conference were:

(1) roads should be divided into four classes, namely, National Highways, Provincial or State Highways, District Roads and Village Roads; the National Highways, which were defined as highways running through the length and breadth of India connecting major ports, foreign highways, and capitals of provinces and of large States, being the framework of the country's road system;

(2) the Centre should assume financial responsibility for the construction, development and maintenance of National Highways and have an effective say in the use and control of these highways;

(3) there should be uniform "classification" standards throughout India; and

(4) as lack of bridges was a handicap to through road communications, it was desirable to overcome this short-coming as early as possible, the Centre so phasing the bridge construction programmes that major bridges which lie on the boundaries between Provinces or States were not neglected.

The estimated road kilometrage to be reached during the succeeding twenty years was placed at 644,000.

After consultation with the Provincial Governments and discussions at meetings of the Transport Advisory Council, the Government of India accepted, with effect from April 1, 1947, complete financial liability for the development and maintenance of certain roads provisionally approved by them as suitable for inclusion in a system of National Highways. In the Constitution, the subject "Highways" declared by or under law made by Parliament to be National Highway is a Central subject (entry 23, list 1 in the seventh schedule). On April 15, 1957, the National Highways Act 1956 was brought into force. Under this Act, all highways in respect of which the Central Government accepted complete financial liability for development and maintenance as national highways were declared to be National Highways. The Act also empowers the Union Government to declare any other highway to be a National Highway or omit any highway from the list of highways to be declared as National Highways. Thirty-nine routes were declared under the Act as National Highways to be developed, constructed and maintained. The Constitution also conferred powers on the Government of India to give directions to a State as to the construction and maintenance of the means of communication declared to be of national or military importance. After the States' financial integration and the States' reorganization, road policy acquired a more uniform acceptance and application over the whole country than before.

Meanwhile, the Roads Wing of the Department of Transport was created as a result of the recommendation of the Nagpur Conference to provide a strong administrative and technical organization to administer the Road Fund and other funds approved by the Central Government for the development and maintenance of the National and State Highways and co-ordinate the road policies at the Centre and in the States. On the technical side, it functioned as a Central Designs Office besides acting as a repository of technical information on roads and bridges. From 1950 onwards, the Roads Wing also had the overall responsibility for the development and maintenance of certain selected roads, namely, those in the Centrally-administered areas (Union Territories), roads under the charge of the Central Public Works Department (C.P.W.D.) in Sikkim and the roads in the North-East Frontier

Agency; the west coast roads in Tamil Nadu and Maharashtra States, the Passi-Badarpur Road in Assam and the Dhar-Udhampur Road in Jammu and Kashmir State. The head of the Roads Wing is the Consulting Engineer (Road Development) who is also ex-officio Joint Secretary to the Government of India.

During the period 1951-1968 the increase in the surfaced and unsurfaced kilometrage of roads has been substantial, which may be seen from the Table below:

TABLE X

Length of Roads in India by Surface, 1951-1968, Select Years

(In thousand kilometres)

	As on March 31					
	1951	1956	1961	1966	1967	1968
1. P.W.Ds. and Local Bodies						
Black top	21	55	98	151	158	166
Cement concrete	2	4	5	6	5	6
Water bound Macadam	135	124	132	126	137	144
Total surfaced	157	183	236	283	301	316
Unsurfaced, motorable	243	256	269	271	276	286
Total	400	439	505	555	577	602
II. *Kutcha*, unsurfaced*	—	60	204	280	307	323
Total unsurfaced	243	315	473	551	583	609
Grand total	400	498	709	835	884	925

*Constructed in C.D. and N.E.S. Blocks.

The rapid increase in the kilometres of roads since 1951 has been made possible largely by the outlays on development, improvement and new construction under the three Five Year Plans. The total length of roads on March 31, 1968 in the different States is shown in the Table below:

TABLE XI

Length of Roads in India by States as on March 31, 1968

(Figures in kilometres)

State/Union Territory	*Surfaced roads*	*Unsurfaced roads*	*Total*
Andhra Pradesh	33,375	54,973	88,348
Assam	5,190	36,736	41,926
Bihar	13,525	43,295	56,820
Gujarat	15,063	23,233	38,286
Jammu and Kashmir	3,558	15,625	19,183
Kerala	19,480	36,355	55,835
Madhya Pradesh	26,684	38,308	65,002
Maharashtra	31,217	25,328	56,545
Karnataka	36,663	27,131	63,794
Nagaland	273	4,166	4,439
Orissa	9,190	43,941	53,131
Punjab (including Haryana)	12,964	46,759	59,723
Rajasthan	18,107	29,909	48,016
Tamil Nadu	41,776	21,182	62,958
Uttar Pradesh	26,976	98,545	125,521
West Bengal	15,150	37,990	53,140
Union Territories*	5,795	26,668	32,463
Total	315,996	609,134	925,130

*Includes 62 km. of National Highway length in Sikkim.

Border Roads: The Border Roads Development Board was formed in 1960 to accelerate the economic development of the North and North-Eastern Border areas. Construction of more than 7,300 km. of new roads and the improvement of about 4,970 km. of existing roads have been included in the immediate programme of the Board.

By the end of 1960-61, the Nagpur Plan targets had been realized, taking the country as a whole despite shortfalls in individual States and regions. The Chief Engineers from the Centre and the States met together some four years earlier and formulated a new twenty-year Road Development Plan for 1961-81 which was presented to the Department of Transport, Union Ministry of Transport. The bases assumed for the Plan were that in developing agricultural areas, no village should remain more than 6.44 km. from a metalled road or more than 2.4 km. from any type of road. In working out specific proposals such economic factors as area, population, regional levels of development and development needs and possibilities were to be taken into consideration. This Road Plan would provide the country with 32 km. of road per 100 sq. km. of area by 1981, as compared with half the ratio of this length of road at the end of the Second Plan. The cost estimated was Rs. 5,200 crores, of which Rs. 630 crores were to be on village roads.

There can be no doubt that, with the clearer appreciation of local needs as a result of economic planning and better estimation of the demands of new industries and increased agricultural production, plans for road improvement and construction have received more detailed and critical appraisal as part of the overall programme of road development. Special attention is also being paid to the roads for development projects in rural areas as well as backward and hilly regions. More recently, the complex problems of metropolitan areas have also been studied from the point of view of passenger and goods transport and of removal of obstructions to traffic movement such as level crossings.

The progress of expenditure on roads during the successive Plan periods may be seen from the following figures:

	Expenditure (Rs. Crores)
First Plan	134.47
Second Plan	245.80
Third Plan	459.00
Annual Plans (1966-69)	307.00
Fourth Plan	876.00

In June 1961, the International Development Association, an affiliate of the World Bank, extended a Development Credit of $60 million (Rs. 28.57 crores) to meet about 55 per cent of the cost of certain selected road and bridge works on National Highways in the States of Bihar, West Bengal, Orissa and Maharashtra as well as on the Eastern Express Highway in Bombay City. The loan is interest-free and repayable over a period of 50 years.

The road kilometrage during the successive Plan periods is summarized below:

TABLE XII

Road Kilometrage at the end of Each Plan

	Surfaced	*Unsurfaced*	*Total*
1951	157,019	242,923	399,942
First Plan	183,023	315,321	498,344
Second Plan	235,790	473,330	709,120
Third Plan	283,385	551,380	834,765
Annual Plan 1968	315,996	609,134	925,130

The Fourth Plan, under both the Central and State sectors, places special emphasis in the road development programmes on the removal of deficiencies, such as missing links and unbridged river crossings on metropolitan roads, and on the development of rural roads.

Road Transport: Road transport as an important factor of large scale transportation in the country developed only with the advent of the motor vehicle. Other forms of road transport, such as bullock carts, horse-drawn carriages, *palkies*, etc., had only a limited range of operation in regard to both the area covered and the number of persons and volume of goods carried. The new form of transport came into increased use for public transport only in the second decade of the present century, and with it surface transport in India entered a new phase.

Prior to 1914, the operation of motor vehicles in the provinces of Madras, Bombay, Bengal, the United Provinces and the Punjab, was regulated by their respective provincial acts. It was only in 1914 that the first All India enactment relating to motor vehicles — Indian Motor Vehicles Act 1914 — was passed. The Act, however, did not make any distinction between different types of motor vehicles. Nor was any attempt made to restrict their free movement.

Conditions radically changed after World War I, 1914-18, when the surplus military vehicles were put on the roads in large numbers. The pace at which goods and passengers came to be transported by road took even the Provincial Governments by surprise. Fare cutting and poorly maintained vehicles created serious problems of competition and safety on roads. The Act of 1914 had to be supplemented in the post-war years by provincial legislation in an effort to introduce some form of regulation and control. The remarkable ease with which motor vehicles reached parts of the country which had seldom seen even bullock carts from outside except at infrequent intervals of fairs, festivals or market days, helped to accelerate the pace of the change. Within a decade the ubiquity of the motor vehicle had transformed the scene.

The increasing diversion of traffic to the road and the consequent financial losses to the railways, particularly against the background of

steeply declining revenues with the onset of the world-wide depression, drew attention to the importance and urgency of developing a sound policy on the question of regulating road-rail competition. The problems to be dealt with related to the diversion of railway III class passengers to the bus, the long-distance passengers to the private automobile and the goods traffic to the lorries. It was not all a question of more diversion of traffic: motor transport did indeed develop a considerable amount of new traffic in areas not served by the railways or where the facilities provided by the railways were less attractive from the point of view of frequency of service, convenience and/or cost. Road conferences with representatives of the Central and Provincial Governments and other interests affected, held at irregular intervals since 1929, did not lead to any improvement in the situation. The Indian Railway Enquiry Committee 1937, discussing the question of road-rail competition, made a large number of recommendations in regard to general policy, legislation and detailed measures to be taken in regard thereto. As a result of these, the Transport Advisory Council was set up as a policy-making body at the Centre, with the Central Minister (then called Member) dealing with motor transport as Chairman and the State Ministers of Transport as Members.

The Government of India Act 1935 made provision for Central legislation by including "mechanically propelled vehicles" in the concurrent list. Uniformity in dealing with motor vehicles was sought to be achieved by passing the Motor Vehicles Act of 1939 in accordance with which rules were framed thereunder by the State (Provincial) Governments. Modelled on the English Acts. the Act provided for the creation of Regional and Provincial Transport Authorities with full powers to grant permits to "stage carriages" (buses), "public carriers" (public goods vehicle owners), and "private carriers" (owners of goods vehicles carrying their own goods), etc., and to lay down conditions (routes, timings, specifications of vehicles, standards of maintenance, etc.) under which the permit holders must operate. An important provision gave independent powers for all practical purposes to Provincial and Regional Transport Authorities who were not subject to the direction of the State Governments in regard to their decisions on the issue of permit. Under the Act, State Governments were empowered to prohibit or restrict conditionally, by notification in the State Gazette, the conveying of long distance goods traffic by road or of specific classes of goods by private or public carriers with the object of promoting co-ordination of road and rail transport. The regulatory restrictions under the Motor Vehicles Act were later to be embodied in the "Code of Principles and Practices in the Regulation of Motor Transport," and circulated to State Governments for adoption in 1950.

Motor transportation suffered a setback during World War II. The

private operators were faced with numerous difficulties, such as stoppage practically of the imports of spare parts as a result of which their prices rose to abnormal levels and the restrictions imposed on the amount of petrol that could be consumed. The available trucks were practically requisitioned by Government and they were driven by producer-gas to the maximum extent possible.

The proper index of progress of motor transportation is the number of motor vehicles operating in the country from year to year. Unfortunately, there is no information prior to 1925 and, in respect of the number of vehicles operating in later years upto 1947, the statistics available for the country do not include the former princely States. The figures relating to imports however, are available and apply possibly to the whole country (Table XIII).

TABLE XIII

No. of Motor Vehicles Imported Each Year and the Total Number of Motor Vehicles 1913-1947, Select Years

March 31	*Import of Motor Vehicles*	*No. of Motor Vehicles*
1913	3,089	—
1915	3,356	—
1920	13,486	—
1925	12,998	48,797
1930	34,661	117,900
1935	25,201	127,878
1940	25,528	136,985
1945	7,811	142,172
1947	22,407	168,368

Policy for Road Transport: In September 1954 the Planning Commission, in consultation with the Ministry of Transport, issued a communication to State Governments with reference to the basic policy for the development of road transport under the Five Year Plan. Where Government participation was contemplated it was stated that the setting up of a tripartite organization with the State Governments, railways and private operators should be promoted. In formulating the Second Five Year Plan, the Planning Commission approved of the schemes of various State Governments for the expansion of road transport services on the strict understanding that they would set up Road Transport Corporations under the Road Transport Corporations Act 1950. Some of the State Governments, like Kerala and Uttar Pradesh, desired to continue the operation of nationalized transport services departmentally on the ground that they would otherwise lose a substantial amount of revenue. The corporations would have to pay income-tax and incur more expenditure on amenities and road development from the balance of profits. The Planning Commission did not agree and, in December 1957, the State Governments were informed by the Ministry of Finance (Department of Economic Affairs) that.

with effect from April 1, 1958, assistance from the Centre, whether by way of loans or grants, would not be available to transport undertakings owned and/or managed departmentally unless they were incorporated under one or the other of the special enactments or as a company under the Indian Companies' Act. In spite of these instructions, some State Governments did not agree to constitute Road Transport Corporations or joint stock companies to take over management of the departmentally operated road transport services. As the National Development Council did not reach any final decision, it was referred to the Committee on Transport Policy and Co-ordination, which unanimously supported the policy of forming statutory road transport corporations with the participation of the railways and the undertakings to ensure a degree of co-ordination of rail and road transport. The Planning Commission, therefore, decided to adhere to this policy.

The Transport Development Council (set up in 1958) advises the Government on all matters relating to roads, road transport, inland water transport and internal air transport, and on such problems relating to co-ordination between different forms of transport as may be referred to it. The Road and Inland Water Transport Advisory Committee, with the Minister of Shipping as Chairman, was set up in 1958 to discuss problems relating to roads, road transport and inland water transport, and make recommendations to the Transport Development Council for final decision.

Inter-State Transport Commission: With the rapid extension of motor transportation from one State to another, the need was felt for an Inter-State Transport Commission to deal with matters affecting inter-State road transport. Legislation to this effect was completed in December 1956 in the Motor Vehicles (Amendment) Act 1956, by which an Inter-State Transport Commission was constituted "for the purpose of developing, co-ordinating and regulating the operation of transport vehicles in respect of any area or route common to two or more States". The functions which the Commission may be authorized to do under the Act are:

(a) to prepare schemes for the development, co-ordination or regulation of the operation of transport vehicles, and in particular goods vehicles in an inter-state region;

(b) to settle all disputes and decide all matters on which differences of opinion arise in connection therewith; and for the regulation of the operation of transport vehicle in an inter-State region;

(c) to issue directives to State/Regional Transport Authorities interested, regarding the grant, revocation and suspension of permits. or countersign permits for operation in any route or area common to two or more States;

(d) to grant, revoke or suspend any permit or countersign permits for operation of any transport vehicle in respect of such route or area common to two or more States as may be specified by the Central Government;

(e) to perform such other functions as may be prescribed by the Central Government under Section 63-C of the Act.

Since its establishment in 1958, the Inter-State Transport Commission has brought about a number of reciprocal agreements between all contiguous States for the regulation of inter-State traffic, including some long distance inter-State routes, covering more than two States. Among the several steps taken to improve inter-State transport may be mentioned the issue of composite permits under the South Zone, affording an option to permit holders to choose any four States other than the home State for the purpose of operation. The Commission has been making efforts to improve missing links and remove bottlenecks to facilitate smooth flow of long distance traffic.

The Central Road Transport Corporation was set up for maintaining essential supplies in the North-Eastern region following the Chinese aggression.

Progress under Plans: The progress of road transport under the stimulus of planned programme of development has indeed been striking. From the statitics relating to it since 1950-51, it will be seen that the number of motor vehicles registered in India had more than doubled by 1960-61, and increased to 470 per cent by 1968-69. A large proportion of the increase, however, was under motor-cycles and auto-rickshaws (Table XIV).

TABLE XIV

No. of Motor Vehicles Registered In India

	1950-51	1960-61	1968-69*
Passenger cars and jeeps	147,712	287,913	512,037
Taxis	11,551	21,663	44,804
Buses	34,411	56,792	85,490
Trucks	81,888	167,649	300,922
Motor cycles and auto rickshaws	26,860	94,595	392,154
Others	3,891	35,863	104,418
Total			1,439,825

*Provisional figures

The development and maintenance expenditure on roads has recorded an increase of about 150 per cent by 1960-61 as compared with 1950-51, as shown in Table XV.

TABLE XV

Expenditure on Road Development and Maintenance

(In lakhs of Rs.)

	1950-51	1960-61
Development:		
National highways	338	1,001
Central Road Fund	283	379
Roads of economic or inter-State importance	—	486
Roads in Union Territories	35	470
State roads	1,170	4,194
Urban roads	—	410
Maintenance:		
National highways	357	540
Roads in Union Territories	30	96
State roads	1,827	2,802
Urban roads	—	500
Total:	4,040	10,878

The total figures of expenditure on development and maintenance in 1967-68 are given below:

	(In crores of Rs.) 1967-68
Development	96.58
Maintenance	81.15
Total:	177.73

Public revenues from road transport have also recorded a considerable increase. The comparative receipts, Central and State are shown in the Table below:

TABLE XVI

Public Revenues from Road Transport

(In lakhs of Rs.)

	1950-51	1960-61	1967-68
Centre			
Motor vehicles and accessories:			
Import duty	9,44	14,80	21,04
Excise duty	—	10,50	20,86
Tyres and tubes:			
Import duty	7	90	63
Excise duty	3,95	13,34	37,88
Motor Fuel:			
Import duty	19,41	7,50	3.39
Excise duty	1,95	64,65	229,94
States			
Motor vehicle taxes and fees	12,44	30,40	77,57
Sales tax on motor fuel	—	16,91	44,91
Passenger and goods tax	11	8,45	45,50
Total:	47,37	167,45	481,72

IV. Inland Water Transport

As in other countries naturally endowed with navigable river systems, water transport has been an important adjunct of India's economy from time immemorial. It was more economical, and with the long coastline of over 4,800 km. and main rivers flowing down hundreds of kilometres all the year round, these waterways provided the means of conducting trade with the neighbouring countries from earliest times.

In 1829, H. T. Prinsep, Secretary to the East India Company, referred to the state of inland navigation in these terms: "There is no river in the world, unless those of China be exceptions, on which there is so large a navigation as on the Ganges and its tributary streams. Major Rennell, writing in 1780, reckoned that no less than 30,000 boatmen found their livelihood from this source, and as that was a time when trade was far less flourishing than at present .. it might not be too much perhaps to assume the number of boatmen in the present day to be double that estimate .. Everybody that has lived on the banks of the great Ganges has been struck by the constant succession of boats moving up or down, the river never appearing for a minute altogether clear and as this is nearly the same at all seasons and in all places, it leaves an impression of the extent to which this magnificent stream ministers to the wants of commerce and of the traveller, such as defies the attempt at computation. It is not Ganges only as a single stream that confers these benefits but all the larger rivers that bring down the water of the Northern hills are navigable more or less throughout the year and almost to the foot of the first range."

Although the main river systems of the country, principally Ganga, Brahmaputra, Indus, Bhagirathi, Hooghly, Mahanadi, Godavari, Krishna, Kaveri, Narmada and Tapti, had figured prominently as carriers of goods and passengers for centuries past, water transport thrives today only in the States of West Bengal, Assam, Andhra Pradesh and Kerala and, to a limited extent, in the other States. During the 19th century, the canals and waterways provided some of the main arteries of the transport system of the country. The introduction of steam vessels in north-east India during the early part of the last century completely revolutionized inland water transport. This assisted the growth and development of the indigo industry in Bihar, the jute industry in Bengal and the tea industry in Assam, Sylhet and Cachar valleys. Inland water transport facilitated the movement of the produce of these areas to Calcutta for export by sea to the world markets.

The importance of waterways was stressed by Sir Arthur Cotton, the pioneer of irrigation works and canals in India. According to him, "Water is incomparably India's greatest treasure and, were this generally turned to account, she would be in the highest state of temporal prosperity." In the Master Plan for Navigation, he proposed a network

of navigable canals and rivers for the entire country, a greater part of which could have been executed at the time as the withdrawals for irrigation were low and would have succeeded in attracting industries to the close proximity of waterways. The reluctance of the Government, apprehending the effects of competition of navigable canals on the vast system of the railways along the main lines of communication and possible inroads into the profits of the railway companies which they had guaranteed or were deriving on the State lines, stood in the way of an active policy of development of inland water transport. Some of the irrigation canals, such as the Ganga and the Yamuna canals, also proved inadequate to serve at the same time the interests of irrigation and navigation. The withdrawals of water from the Ganga resulted in the rapid decline of navigation in the upper reaches in the dry season.

With the active encouragement given to the railways at the cost of water transport, important towns, trading centres and industries developed along areas in close proximity to the railway lines, and the loading and unloading stations along the canals and other waterways, ceased to attract trade and declined rapidly in importance. The end of the last century saw that, while the railways prospered, the less organized water transport was steadily driven out of business, except in regions such as north-east India where, by virtue of the natural advantages of a network of waterways and the difficulty of bridging mighty rivers like the Ganga and the Brahmaputra and numerous deltaic off-shoots in the Sunderbans, steamer companies organized on sound commercial lines continued to flourish. The other regions where inland water transport operated successfully were on the Krishna and the Godavari, where similar advantages stood them in good stead. The backwaters of the west coast also supported an active water transport system.

The total length of navigable waterways in the different parts of the country in 1890-91 was 2,882.5 miles (4,737 km.). as may be seen from the Table below:

TABLE XVII

Length of Navigable Waterways 1890-91

(*N.B.*: Figures in brackets include the non-navigable portions).

	Miles	
Panjab Canals		
Western Jamuna	243	(280)
Sirhind British	143	(319)
Ind. State	46	(223)
	432	
North-West Frontier Provinces Canals		
Upper Ganga	213	(456)
Lower Ganga	199	(557)
Agra Canal	123	(134)
	535	

TABLE XVII (Contd.)

Bengal Canals	177	
Orissa Canals	72	(252)
Midnapur Canal		(72)
Hijli Tidal Canal	29	(29)
Sone Canals	218½	(367¼)
Minor Works	144½	(163¾)
	641	
Madras Canals		
Godavari Delta	496	(506)
Krishna Delta	284	(325)
Kurnool-Cuddappah Canal	190	(190)
Minor Works	304½	(1,158)
	1275½	
Total: All India	2,882½	(16,026)

Both inland navigation and irrigation depend for their fullest development on the construction of canals. The construction of a canal for transport would be justified only if there were a certainty that it would be extensively used for navigation and on the new line of communication a material saving would be effected in the cost of transport. Apart, however, from all questions of cost, the exigencies of irrigation and navigation are not always compatible. Traffic is not attracted to a navigable canal which does not pass through large cities or important trade centres, or which is not in uninterrupted connection either with the seaboard or with the waterways which form the most convenient outlet for the produce of the tract which the canal traverses. It happens, therefore, that irrigation canals are not always suitable for navigation and, on the other hand, many canals constructed for purposes of navigation only do not irrigate a single hectare.

Inland Waterways in North-East India: Of the various waterways in India, the rivers of the north-east India have, by virtue of the largest meterage and volume of tonnage carried, constitute the most important inland water transport system. The rivers concerned are the Brahmaputra and the Ganga with their tributaries forming about 6,400 km. of waterways through a network of delta rivers and creeks in the Sunderbans. These rivers which impede the operation and development of overland transport are thus a great natural gift to north-east India, as they provide the main channels over which the bulk of the produce of the region is transported.

Assam has a vast internal waterways system. The Brahmaputra, the main artery, flows down the centre of the Assam valley, over a length of 724 km. A number of tributaries, mainly the Subansiri, the Dehing, the Burhi Dehing and the Dehand, are also navigable for varying distances from their mouths. There is a considerable variation in the levels of the main river between the monsoon and dry seasons,

amounting to about 9 metres and current velocities average 8.5 to 9.7 km. per hour during monsoon and 4 to 6 km. per hour in the remaining season. The State is almost entirely dependent on water transport during the monsoon season when the road and rail communications are seriously disrupted. Navigation during this period has its hazards, because of the large volume of silt carried, debris, snags, etc. which are, however, contended with by the operators who have considerable experience of the region. These conditions have influenced the choice of paddle in preference to screw propulsion.

Regular steam services used to operate upto Dibrugarh throughout the year at draft of 1.6 metres. After the earthquake of 1950 which caused the deterioration of the river channels in the upper reaches, the mainline services terminated at Deshangmukh, 76 km. downstream of Dibrugarh, with a feeder service at a draft of 1.21 metres (4'.0") connecting upto Dibrugarh. The protection works at Dibrugarh having induced siltation along the town bank, leaving no suitable berthing sites, even down to 1.93 km. at Bogi Bheel, the feeder services have had to be withdrawn since 1956. The main products of Assam are oil, jute. timber products and tea. About 90 per cent of Assam's tea crop and jute used to be transported to Calcutta by river transport. Despite the little higher rates for carriage by water of tea from Assam tea gardens to Calcutta, as compared with the rail, water transport was preferred because of the advantage of transit time, about 7 days by river against 15 to 20 days by rail. Furthermore, the tea transit sheds and other warehousing establishments at Calcutta have been set up for operation in conjunction with water transport.

Shoals at certain places cause difficulties to navigation. During April 8 to 20, 1958, 70 vessels with nearly 30.481 tonnes of cargo were held up. According to the Joint Steamer Companies, a loss of 12 per cent of annual capacity or of 91,444 tonnes of traffic were lost because of the Noonkhowa Shoal. Better co-ordination among the operators and river training measures have effected great improvement.

The rivers of the Suema Valley have been deteriorating progressively for some years, caused by the rapid run off during the monsoon season and diminished conservation of water supply due to the excessive deforestation of the surrounding Cachar Hills and increased grazing in the lower catchment areas. The low level during the dry season and the shoals between Silchar and Karimganj have restricted feeder services. Lack of terminal facilities and proper approach road connections to the Ghats have been other difficulties experienced by water transport.

The river navigation was mostly in the hands of the Joint Steamer Companies comprising the Indian General Navigation and Railway Company Ltd. and the River Steam Navigation Company Ltd., both incorporated in England with sterling capital. The assets and liabilities

of the Indian branch of the Indian General Steam Navigation Company were taken over by the River Steam Navigation Company. As their craft became uneconomical, Government of India entered into an agreement for the rehabilitation of these crafts by grant of loans amounting to Rs. 2 crores. There were also, besides these, ten Indian companies registered at Calcutta for river navigation.

The Joint Steamer Companies maintained a system of through booking with the railways for many years *via* certain junctions, namely, Shalimar "C" Shed, Dhubri, Pandu, Amingaon, Tezpur, Silghat, Neamati, Karimganj, Manihari Ghat, Paleza and Dibrugarh (temporarily closed). The Indian companies operated between West Bengal, East Bengal (Bangla Desh) and Assam. They do not operate any service on the Ganga and its feeder rivers. The entire fleet of all these companies combined was but a small fraction of the fleet owned by the two English companies, and carried about 10 per cent of the total cargo moved in this region. Their difficulties were old and obsolete craft and inadequate financial resources.

Ganga Water Transport Board: At the instance of the Inland Water Transport Conference 1951, the Ganga Water Transport Board was constituted on March 8, 1952. With representatives from the participating States and functioning under the Ministry of Transport, the efforts of the Board were directed to improving facilities, equipment and transportation in the waterways under its control.

The Ganga, with its important tributaries, the Gomati, Ghagra, Gandak Burhi Gandak and Kosi in the north and the Yamuna, Sone, and Damodar in the south, is the most important waterways system in the States of Uttar Pradesh, Bihar and West Bengal. Emerging as a fair-sized river from Hardwar, the Ganga gets depleted by the Upper and Lower Ganga canals, but augmented by the waters of the Ramganga and the Yamuna at Allahabad, the Ghagra, Sone and Gandak near Patna. From here the river flows in a solid stream, receiving in its course the waters of the Kosi before it turns south past the Rajmahal Hills and towards the east joining the Brahamaputra at Goalando and later spilling into various distributory streams before falling into the sea. The Ganga *via* the Hooghly and the Bhagirathi has a total length of about 2,600 km.

The Ganga and its tributaries had long formed the main trade routes and carried a considerable volume of traffic. Steamers from Calcutta used to ply upto Garhmuktesar, about 644 km. above Allahabad. Till about fifty years ago, steamers used to proceed to Allahabad from Calcutta. Country boats plied above this point with a great bulk of cargo. On the Yamuna large quanities of cotton grown in Bundelkhand used to be sent down from Kalpi.

With the coming of the railways and of industries along their routes and the more recent development of roads and road transport, navigation on the Ganga and the canals dwindled greatly in importance. Navigation on the Yamuna is at present confined to a stretch of about 64 km. above its confluence at Allahabad. The snow-fed Ghagra has adequate discharge during the dry season and has considerable navigation potential. Till the time of the partition of India, a daily service used to operate upto Burhej. The steamer services run by the Joint Steamer Companies from Patna to Burhej were terminated on January 1, 1958. Country boats, however, operate for regular trade as far as Kartanian Ghat near Nepal border. The Sone is navigable for big country boats only during monsoon upto Dehri-on-Sone. On the Gandak, there is considerable boat traffic upto Tribeni Ghat on the Indo-Nepal border. Despite its vagaries, the Kosi is navigable by big country boats from its confluence with the Ganga upto Hanumannagar, a distance of about 670 km. and by smaller boats to a further 56 km. upto Chapra in Nepal from which large quantities of stone are transported down the river for the Kosi barrage.

The Upper Ganga canal, built as an irrigation-cum-navigation canal, was navigable throughout its length of 343 km. till 1933-34, after which navigability decreased to only about 6 km. from the off-take because of power houses blocking the canal. The Lower Ganga canal, also designed for navigation throughout, now permits boats to ply between the headworks and 56 km. and from km. 112 to km. 209.

On the Sone canal system, country boats ply all the year round on the Main Western canal and for a short length of about 7 km. only on the Eastern canal. Country boats ply over 127 km. on the Patna canal and small steamers over 100 km. of this canal. The Arrah and Buxar canals are throughout navigable for country boats and for some 85 km. on the former for small steamers.

The Ganga is navigable from Patna downstream throughout the year. The prospects of the river and canal system in Uttar Pradesh and Bihar have been adversely affected by withdrawals of water for irrigation, the development of railways on both banks of the river and the recent development of mechanized road transport. The lack of location of major industries on the banks of the river has affected the scope for water transport. The partition of the country has also affected the activities previously carried on by water transport in the Ganga network. The movement of traffic between Calcutta and Upper India used to be triangular, namely, Bihar to Assam *via* East Bengal (Bangla Desh). Assam to Calcutta and Calcutta to Bihar; the inland water transport operators maintained water transport through the Ganga, making Goalando the transhipment point for craft plying on the Ganga and

the Brahmaputra. With the partition of the country and the decline of trade with the then East Pakistan (Bangla Desh), the steamer companies completely closed their services on the Ganga.

During 1948-53, the navigation potential of the river Ganga, particularly between Mokameh and Kanpur, a distance of 885 km. was examined by the Central Water and Power Commission. Otto Popper and J. J. Surie, United Nations experts, who undertook a study of the problem of inland navigation in this region, recommended the starting of a pilot project consisting of shallow draft tugs and barges in the reach between Buxar and Allahabad, a distance of 373 km. and the conducting of towing trials of the country boats by power craft. The Ganga Brahmaputra Water Transport Board, which had been appointed in 1952, started on towing trials by tugs around Patna. The programme of starting a pilot project above Buxar, however, received a setback owing to the sudden closure of the steamer services on the Ganga River system by the Joint Steamer Companies, the only concern which had been running steamer services on the Ganga for about 100 years. The Board was merged with the Inland Water Transport Directorate in March 1967.

The Hooghly: The river Hooghly, formed by the confluence of the two Nadia rivers, spill channels of the Ganga about 129 km. above the port of Calcutta is one of the most important waterways in the country. The port itself, situated on the left bank of the Hooghly, is the principal outlet for such products of the country as coal, jute, tea and ores, as well as the products of the States of Uttar Pradesh, Bihar, Orissa, Assam and West Bengal. More than one-tenth of the large volume of traffic handled at the port is carried by inland water transport. Owing to inadequate upland water supply, the conservancy and maintenance of the approaches to the port has presented serious problems. The urgent need for ensuring perennial head water supply which will be necessary to cope with further increase in traffic generated by the development of steel mills and engineering industries has led to the construction of the Farakka Barrage, on the completion of which the navigability of the river is expected to improve considerably.

The Sunderbans: The Sunderbans, representing the intersection of numerous streams and large rivers, has provided navigable cross channels connecting the estuaries of the rivers. Inland water transport is the sole means of communications in this area. The Do-Agra-Khal creek running east to west connecting with the Saptamukhi provides the only link for Calcutta with Assam and Upper India.

Older Canals Connecting Calcutta: The remaining waterways have

declined in importance. The Roopnarayan river with its outfall into the Hooghly at Geonkhali has now a ferry service only up the river for a few miles. The Circular and Eastern canals taking from the Chitpur Lock on the Hooghly and extending upto Hansabad and the Yamuna river provided, prior to the partition, a convenient and safe navigation route for country boats plying between East Bengal and Calcutta, as it avoided the dangerous outer passage through the Sunderbans. The Tolly's Nallah, which once extended to 28 km. from the Kidderpur Docks, has, in consequence of the silting up of the Bidyadhari, navigation facilities only for a short distance in the urban and rural areas. The Midnapur canal, 116 km. in length constructed towards the end of the last century, was of considerable economic importance at the time. The extension of the railway, the resultant competition and the diversion of traffic brought about a rapid decline of the canal, and parts of the canal, between the Roopnarayan and the Damodar, were closed. The traffic between Damodar and Uluberia on the Hooghly is stated to have dropped from 39,626 tonnes to 9,144 tonnes between 1952-53 and 1955-56. The Hijli Tidal canal (also called the Orissa Coast canal) from Geonkhali on the Hooghly upto the Rasul river and the Orissa Coast canal further south has a total length of 89 km. in West Bengal. Although the railway has spelt ruin in this case as in some others, the Hijli Tidal canal appears to be active.

The Damodar Canal: The Damodar-Tribeni canal, part of the Damodar Valley Corporation's project, 137 km. long. is intended to be an irrigation-cum-navigation canal, navigation being in the tail portion. The canal is expected to enable crafts and barges upto 1.83 metres draft to ply throughout the year. The canal is expected to attract trade and industry on both banks. The traffic planned is about 2 million tonnes, made up largely of coal from the Raniganj and Ondel coal-fields.

The Mahanadi and Orissa Canals: The Mahanadi river system and canals provide the State of Orissa with important facilities of inland water transport, particularly in a region having sparse rail communications and inadequate road facilities. The river has a length of about 480 km. in the State and navigation is active on it throughout the year.

Below Cuttack is the Delta canal system. The Kendrapara, the Taldanda and the High Level canals connect the Paradip port with Cuttack; they also supply water for irrigation purposes. The Kendrapara takes off from the pool upstream of Birupa anicut and has its outfall into the Jumbo river, connecting Cuttack with Paradip and False Point. The Taldanda canal on the right bank of the Mahanadi takes off near Cuttack and has its outfall on the Mahanadi about 14.5 km. from Paradip port. It has got narrowed in the lower reaches where

the depths are considerably reduced. The High Level Canal Range I runs from its offtake off Birupa river to its outfall into the Brahmani at Jenapur, a distance of 53 km.

Before railways came to Orissa, the Kendrapara canal was the principal artery of communication, bi-weekly steamer services operating from Cuttack to Chandbali port through the Gobri canal and the Brahmani and Baitarani rivers. These services were connected to regular services to Calcutta through the Matai Nallah and the Orissa Coast canal. The development of the railways proved fatal to water transportation and the Orissa Coast canal itself was abandoned in 1928.

Waterways provide the chief mode of transport in the deltaic districts of Cuttack, Balasore and Puri. The network of navigable waterways and connecting cross channels in this area is comparable to the Sunderbans.

The Mahanadi plays an important part in bringing the rich forest and mineral resources in the upper reaches of the river. When the minimum regulated discharge of water from the Hirakud becomes available, the navigable potentialities in the middle and upper reaches are expected to improve.

The Government of Orissa has been taking steps to rehabilitate, improve and develop the waterways and these have acquired a special significance in connection with the traffic to be handled by the Paradip port. These canals and the Mahanadi may acquire greater importance when the major port of Paradip begins to handle the full traffic potential of its hinterland.

The Godavari and Krishna River Systems: The navigable waterways of the Godavari comprise the main river with the tributary Sabari, the delta arms of the Gautami, Vasistha and Vynatheyam and a network of irrigation-cum-navigation canals in the delta. The Godavari, the second largest river in the Union, with a total length of about 1,500 km., descends through the Western Ghats from near Nasik and flows in a south-easterly direction, falling into the Bay of Bengal in the form of a delta below Rajahmundry. From anicut at Dowlaiswaram, below Rajahmundry, a network of irrigation-cum-navigation canals takes out on either bank.

The Godavari is navigable by country boats of upto 40 tonnes to a distance of about 300 km. and by small steamers upto Bhadrachalam, a distance of 161 km. upstream from Dowlaiswaram, throughout the year. The delta canal system extending to about 790 km. comprises (1) the Godavari Eastern Delta canals to the north of the Gautami, (2) the Godavari Central Delta canals between the Gautami and the Vasistha, and (3) the Godavari Western Delta canals to the south of Vasistha. The activities connected with tapping the rich mineral and forest pro-

duce of the regions traversed by the river have given special importance to the extension of navigation facilities of the Godavari network.

The Krishna, rising in Mahabaleshwar, traverses through a hilly region in a south-easterly direction till it falls in the Bay of Bengal, below Vijayawada. The Krishna River system comprises, besides the river, the delta canal system, Kurnool-Cuddappah canal and the Tungabhadra canal in Karnataka. There is a weir across the river at Vijayawada from which irrigation-cum-navigation canals have been taken out. The canal system has a total length of 644 km. The river is navigable by country boats and small steamers (upto 30 tonnes capacity) in the tidal reach for about 66 km. to a point 37 km. below Vijayawada anicut, whence navigation is routed through the delta canals connected above the weir by suitable locks. From the anicut upstream country boats and small steamers ply for about 37 km. throughout the year, and during the monsoon for a further 64 km.

The Krishna Delta canals form the connecting link between the Godavari canals in the north and the Buckingham canal in the south Through communication is therefore possible between these canal systems, thus providing a continuous waterway over a distance of about 730 km. from Kakinada in the north to the Mercanum (Marakkanum) backwaters in the south. Several industrial conerns, which have sprung up close to the Krishna Delta canal system, can, it is stated, utilize water transport for bulk movement of commodities when improvement has been effected in the facilities.

The Tungabhadra canal, 227 km. in length, takes off from the Tungabhadra Dam and is expected to permit navigation upto 166 km.

Buckingham Canal : The Buckingham canal, one of the longest in the world with a total length of 415 km., runs through the two States of Andhra Pradesh and Tamil Nadu almost parallel and close to the east coast It is a tidal canal, exclusively constructed for navigation by joining a series of natural backwaters and connecting all the coastal districts from Guntur to South Arcot. It is 315 km. long, north of the city of Madras, and 100 km. south of it. The northern part connects with the Commumur canal of the Krishna Delta which, in turn, is connected to the Godavari canal as far north as Kakinada. At the southern end, it terminates in the Mercanum (Marakkanum) backwaters.

The history of the canal, one of the earliest feats of engineering in the last century, runs back to 1801. From a 17.7 km. long canal from the Madras city to the southern end of the Ennore backwater, it was later extended to Pulicat lake and called 'Cochrana Canal' after Basil Cochrane who owned it and levied tolls for 45 years till 1847. It was then acquired by Government and gradually extended to 111 km. to

the north at Dugarazapatnam and 64 km. south to the Palar river. The northern part, called the East Coast canal, was extended by 1876 to Krishnapatnam, 148 km. north of Madras, thereby bringing the important town of Nellore within reach of a short length of road to connect the town. In 1878 it was named Buckingham canal after the then Governor of the State (Duke of Buckingham and Chandos).

Until the construction of the railway connection to Nellore, the canal was the principal means of transportation for passengers and goods between Madras and Nellore. In 1877 the canal was extended to 183 km. north, when thousands of persons affected by the Great Famine were employed for excavation work on the Pennuru river. By the end of the following year, the canal was extended to its existing northern limit, the junction of Pedda Ganjam by means of a lock with a lift to the fresh water high level Commomore canal of the Krishna Delta system. The length of the canal north of the Cooum river, 316 km. has since been known as the North canal.

As regards the southern part, the connecting cut, called the Junction canal, between the Cooum and Adyar rivers in the town of Madras was constructed by 1877. By 1882 the entire length of 106 km. to the Mercanum (Marakkanum) backwater, called the South canal, and the several bridges, including the Junction canal, were built. Thus the year witnessed the completion of 421 km. of open excavated channels consisting largely of cuts joining backwaters with but one regulating lock. The silting of the canals and the need to avoid risks of river floods or storm wave backing into the canal led to changes in design and between 1892 and 1897, the flood gates were converted into locks and openings to the sea and long surplus escapes were formed in the eastern bank of the canal.

The economic importance of the canal in the last century to the districts traversed by it was indicated by the fact that, until the advent of the railway, the canal was the only means of transport of passengers and goods between Nellore and Madras. In the early eighties, the cost of transport by the Buckingham canal varied from 2 to 3 pies per ton per mile as against 3 annas 2 pies by road. The volume of traffic on the canal in 1882-83 consisted of 24,982 trips of laden boats, 2,817 trips of empty boats, 7,970 trips of passenger boats; 337,992 tons; 4,961,087 ton goods valued at Rs. 100.35 lakhs; number of passengers 98,802; and tolls and licence fees Rs. 99,758.

After the completion of the entire length, the canal placed the city of Madras in cheap and easy communication with the important towns of Kakinada, Vijayawada, Masulipatanam, Nellore and numerous small trade centres.

The canal is ordinarily fit for navigation all the year round for traffic to be carried by boats from 5 to 30 tonnes. With the coming in of the

railways, the diversion of traffic, sometimes even deliberately, led gradually to the neglect of the canal and the silted-up condition, in the absence of proper maintenance, contributed to still further deterioration. Nothing was done despite public agitation in 1910 and even the acute shortage of rail and shipping facilities during World War I failed to spur action towards improving the canal. It was only during the Second World War under the stress of exceptional strain on rail and road transport that Government took steps to keep the canal in working condition. From 1940 to 1944 the amount spent on improvements was Rs. 18.4 lakhs. These included a masonry lock near Pulicat lake, six cargo boats, power tugs for pulling boats, rivetting of banks and berms of the Junction Canal in Madras connecting the Northern and Southern canals There was also a proposal to connect the Buckingham canal with the Vedaraniyam canal in the Tanjore district whch would provide direct communication from Kakinada to Point Calimere and thence to Ceylon (Sri Lanka).

From 238,772 tonnes carried during the pre-war year 1938-39, the traffic rose to 487,700 tonnes in 1943-44. It declined in the following years, touching 120,321 tonnes in 1953-54. There was, however, an improvement to 291,506 tonnes during 1957-58. The Inland Water Transport Committee 1959 drew attention to some of the disabilities from which the canal suffered, such as inadequate maintenance, lack of head room in the two railway bridges in the Madras City area, the lack of terminal facilities, inadequate road connection with important railheads and towns, absence of regular two paths, difficulties in obtaining fresh water supplies and lack of proper warehouses to avoid detentions to craft.

Vedaranniyam Canal: The Vedaranniyam canal, taking off from the Kudavayyar river, connects the Vedaranniyam town, a large salt manufacturing centre, with the port of Nagapattinam. It has silted up in a number of reaches and the construction of the railway line, Tirutturaipundi-Agastyampalli, has deprived the canal of its importance. It was originally built to meet the transport needs for moving such commodities as salt, fuel and rice. About 1,000 boats used to ply on this canal, but the number has dwindled to 110 licensed boats carrying about 7,112 tonnes of cargo, made up of local produce, such as fodder, firewood and dry fish. A proposal to connect the southern arm of the Buckingham canal with the Vedaranniyam canal was under consideration, and this, if given effect to, will extend the waterway right from Kakinada to Vedaranniyam, over a distance of 966 km.

Kerala Waterways: A large number of westward flowing rivers, marshy submersible lands, lakes and backwaters and link canals along the coast have combined to provide one of the most important networks of water

transport in the State of Kerala. The system of waterways extends from Hosdurg in the north to Trivandrum in the south. The continuous chain of backwaters and lagoons is separated from the coast by a narrow strip of land, varying from about 11 km. to less than half a km. The extension to Trivandrum was effected by tunnels through the Varkala barrier enabling the canal to get through. The nine sections into which these waterways are divided are as follows:

	Km.
Hosdurg — Azhikkal	55
Azhikkal-Badagara	49
Badagara-Kadalundi	72
Kadalundi-Ponnani	61
Ponnani-Ala	80
Ala-Cochin	35
Cochin-Aleppey	71
Aleppey-Quilon	75
Quilon-Trivandrum	62

The Kerala waterways have attracted a number of industries and products close to them, such as timber, plywood manufacture, coconut, coir products, arecanuts, shell. lime, tiles, bricks and clay, pepper, ginger. vegetables, rice, fish and other products of the region, besides coal and petrol. The ease of access to a number of minor ports and the major port of Cochin affords special advantages to the trade and commerce in the State.

Of the 41 rivers, seven are important for navigation, connecting the interior parts of the State to the backwaters. The total volume of traffic carried on the waterways, according to a recent Traffic Survey Kerala Waterways was placed at 2.3 million tonnes. Thousands of *valloms* (country boats) give employment to a large number of people in plying them, and in ancillary services, such as loading and unloading, and serve the needs of cottage industries established all along the coast. These depend mostly on water transport. Most of the industrial and commercial centres like Trivandrum, Quilon, Kottayam, Changanessery, Alwaye, Trichur, Feroke and Calicut, have either directly or through link canals access to the west coast canal system which itself passes near or through the main ports of the State, namely, Trivandrum, Aleppey, Cochin, Calicut, and Cannanore.

The Inland Water Transport Committee drew attention to some of the improvements required to devolop the water transport facilities, such as the deepening and widening of the channels, more adequate terminal facilities, navigational aid, new locks between Ponnai and Chetwai, raising the headroom of road bridges, replacement of existing locks by larger ones, maintenance of minimum width of about 15 metres and depth of 1.82 metres at low water, except in part of the northern section of the canal, new tunnels at Varkala, if the traffic potential justified, and the extension of the canal from Badagara to Mahe.

These recommendations have been gone into in greater detail by the State Government and action on some of them has been taken by it.

As the coastal strip of the Karnataka State north of Mangalore is without any through lines of communication either by railway, road or waterways, and as the swift-flowing rivers with a drop of 600 to 900 metres to sea level within a distance of 64 km. are not navigable in the monsoon months, it has been suggested that, if the lagoons and backwaters formed in the lower reaches by these rivers are connected by a canal, it may prove to be a useful waterway between the two ports of Malpe and Mangalore.

Inland Navigation in Maharashtra and Gujarat: The two States of Maharashtra and Gujarat between them have the longest coastline of about 2,400 km. In the State of Maharashtra, there are, besides the major ports of Bombay and Marmagao, numerous minor ports having a considerable amount of traffic carried by powered vessels and sailing craft. A large number of rivers, creeks and tidal inlets of estuaries navigable from about 6 to 64 km. from their mouths, have combined to develop a closely inter-connected coastal and inland navigation system.

Among the navigable rivers may be mentioned the Vasishti and the Sabitri, both of which have potentialities of further development.

The Bombay Steam Navigation Company used to operate a regular passenger service between Bombay, Rewas Port, and Dharamatar Port on the Amba river and this was preferred for the reason that it is a much shorter route than that by road.

The Narmada river, 1,300 km. long and draining the large watershed of Central India, is navigable in its tidal compartment upto Broach, 48 km. from the mouth, by vessels of 70-80 tonne capacity and small country craft to Chandoo, about 64 km. upstream.

The Tapti river, which once nourished the port of Surat, has deteriorated considerably and sailing vessels can come upto Surat, 29 km. from the mouth only with great difficulty. Small country craft and bamboo rafts, however, can come upto Kathor. In view of the siltation of the river, there is a proposal to shift the port down the estuary to Magdalla. The new industrial estate at Udhana, near Surat, is expected to provide adequate traffic potential for both coastal shipping and inland water transport.

Certain improvements effected after a hydrographic survey of the rivers and creeks, such as dredging to maintain adequate depth, navigational aids for marking shoals, rocks, etc., provision of tugs to assist country boats in tidal stretches to secure better turn-round, have been suggested to extend the scope for inland water transport in this part of the country. Long-term measures for extensive afforestation on the foothills of the catchment area have also been recommended.

The development of water transport on the Thana and Bassein creeks and the Ulhas river is expected to afford relief to the present bottleneck in transport in Bombay

Rajasthan Canal: The Rajasthan canal, the construction of which has been recently undertaken, can well combine irrigation potentialities with facilities for inland water transport. The navigational requirements, however, have not been taken into account in the present plans for the canal, but new railway facilities have been provided to meet the needs of the areas adjacent to the canal.

Present State of Inland Water Transport: Inland water transport has suffered from neglect for over a century. The real weakness of the situation, according to the Inland Water Transport Committee, lies in "the almost complete absence of expert technical organization conversant with, and having practical experience of, various complexities of the inland water transport, both in the Government of India and in the State Governments mainly interested, *e.g.*, Assam, Bengal, Orissa, Andhra Pradesh, Kerala and Bombay." Despite the revival of interest since independence in developing inland water transport, there has been even during recent years a decline in the activities connected with it. On the Calcutta-Assam river route the cargo carried up and down between 1958 and 1962 decreased from 755,122 to 406,420 and from 525,096 to 406,420, respectively. The factors which have stood in the way of the progress of inland water transport have been (a) the railways and roads running parallel to the canals; (b) the priority generally given to the claims of irrigation as against those of navigation; (c) the absence of any industrial site in the proximity of any natural waterway; and (d) the low operational efficiency of inland water transport because of obsolete craft which have outlived their normal life and the near-primitive methods of handling cargo.

The country boats, the design of which varies from State to State, being adapted to the limitations of particular waterways and the traffic handled, are still the mainstay of inland water transport. The propulsion is by oar, sail or towing lines, and the use of power is almost non-existent on grounds of cost. These boats use waterways where powered craft cannot be used. Except in port areas, they are seldom registered or subjected to periodical surveys, and their operations are restricted by excessive tolls at ferry *ghats* in many places. More efficient utilization of country boats depends on better organization, improvement in design standardization and suitability to powered propulsion.

The Transport Development Council makes a periodical review of the condition of inland water transport. The working of a Directorate of Inland Water Transport in the Ministry of Transport since 1967 is

intended to maintain an overall watch on matters connected with the revival and sustained expansion of water transport in the country.

The subject "Shipping & Navigation on Inland Waterways as regards mechanically propelled vessels" is included in List III (Concurrent List) of the Seventh Schedule of the Constitution. The executive responsibility for the development of inland waterways and navigation thereon rests with the State Governments, unless any waterway is declared as "National Waterway" by law by Parliament. No waterway has so far been declared as a National Waterway. The river conservancy and any other measure for the improvement of any waterway are, therefore, the concern of the State Governments.

Plan Outlays: The expenditure on the development of Inland Water Transport during the Third Plan period and the succeeding three years and the outlay proposed under the Fourth Plan are shown below:

Public Sector Outlay on Inland Water Transport

(Rs. Crores)

1961-66	Third Plan	4.00
1966-69	Annual Plans	6,00
1969-74	Fourth Plan	13.00

The proposed expenditure during the Fourth Plan includes provision for Central schemes, namely, the Rajabagan Dockyard at Calcutta for the Central Inland Water Transport Corporation, technical organization, training schemes, and the development of the Pandu and Jogigopa ports. The Centrally-sponsored schemes are expected to cost Rs. 4 crores.

V. Shipping

The finds of Egyptian, Assyrian and Indian archaeologists have confirmed the sea faring activities of Indian traders long before the Christian Era. India's maritime activity appears to have attained considerable expansion in the East during the latter days of the Gupta Empire and the period of the Chalukyas and Cholas, taking within its sweep the Indian Archipelago, the China Sea and even Japan.

Coming to later times, the testimony of Ibn Batuta points to the concentration of foreign commerce in Gujarat, Malabar and the Konkan and the participation of Indian and Arab ships in this trade. Niccolo Conti in the 15th century makes mention of India-built ships — "some ships longer than ours, capable of containing 2,000 butts and with five sails, and as many masts." He added: "The lower part is constructed with triple planks to withstand the force of tempests, to which they are much exposed." Some were "so built in compartments that, should one part be shattered, the other remaining entire may accomplish the

voyage." Calicut was regarded as one of the greatest ship building centres in India, executing orders from even foreign countries.

During the Mughal Empire, the development of shipping and inland navigation was under the care of a specialized branch of administration. A special admiralty was created during Akbar's reign with special specific functions assigned to it, namely, supplying big ships and boats, supervising construction of big ships, supplying trained personnel of various grades running into 12 main categories, superintendence of boats, ships and their operations, and collection and remission of port dues.

With the coming in of European powers to engage in the East Indies trade, the existence of Indian shipping was threatened and it came to be gradually eliminated. The policy followed by them was clearly enunciated by Francisco Almeida, the first European Viceroy of the Indies to his Sovereign: "Let it be known to your Majesty that, if you are strong in ships, the commerce of the Indies is yours; and if you are not strong in ships, little will avail of any fortress on land." This policy has been sedulously followed in later years by the Dutch and finally by the British power to the detriment of Indian shipping and its final disappearance from foreign waters and later even from her own coastal trade.

Ship building, however, persisted, flourishing under the East India Company right upto the middle of the 19th century. In 1800, Lord Wellesley referred to "the state of perfection which the art of ship-building has already attained in Bengal, promising still more rapid progress and supported by abundant and increasing supplies of timber" and to the ability of the port "to furnish tonnage to whatever extent it may be required for conveying to the port of London on the trade of the British merchants of Bengal".

The art of ship building was in so excellent a condition that ships built in India sailed the Thames in company with British-built ships under the convoy of British frigates. The teakwood vessels of Bombay were greatly superior to the "Oaken Walls of Old England" and for this reason, Lt. Col. A. Walker, argued for a policy of drawing on Indian resources and skill for supplying the needs of British Navy and merchnt fleet. The teakwood built ships lasted fifty years against the ships of the British having to be renewed every twelve years. While no Europe-built ship was capable of doing more than six voyages in safety, Bombay-built ships, after running for fourteen or fifteen years, were bought by the Navy. The authority just quoted assessed the difference in favour of India-built ships at 325 per cent. In view of the greater durability and economy of Indian ships, British ship building interests scented danger. According to Taylor, "The arrival in the Port of London of Indian produce in Indian-built ships created a sensation

among the monopolists which could not have been exceeded if a hostile fleet had appeared on the Thames. The shipbuilders of the Port of London took the lead in raising the cry of alarm; they declared that their business was on the point of being ruined and that the families of all shipwrights in England were certain to be reduced to starvation."

Discrimination Against Indian Ships: The cry prevailed and stirred acts of hostility on the part of the British Government, such as the banning of Indian ships from British waters and the Government of India imposing discriminatory and crushing duties on goods imported on Indian bottoms. H.H. Wilson observed: "The foreign manufacturer employed the arm of political injustice to keep down and ultimately strangle a competitor with whom he could not have contended on equal terms." Indian shipbuilding had to perish so that British shipbuilding industry could flourish. These, and not the advent of steamships and iron and steel replacing wood, as often alleged, led to the decline of the Indian ship building industry.

Between 1857 and 1898-99, the Indian vessels entered and cleared, declined from 34,286 to 2,302, and the tonnage from 1,219,958 to 133,033. Over the same period, while the British vessels dropped from 59,441 to 6,219, the tonnage rose from 2,475,472 to 7,685,009. Foreign ships, which had by this time entered the picture, accounted for 1,165 vessels and 1,297,604 tons.

It was during the period of World War I that it came to be realized that the difficulties connected with the shortage of shipping would have been substantially less had an Indian shipping industry been in existence. The Indian Industrial Commission, 1916-18, recognized the need for developing Indian shipping and for training officers and engineers in connection therewith. The progressive disappearance of a large part of world shipping and an evident shortage of tonnage caused by the submarine menace during 1914-18 pointed to the importance of India having her own merchant fleet in any replacement programme. Beyond the creation of a shipbuilding branch in the Indian Munitions Board and getting an officer on loan from the British Admiralty, nothing further was done. Government held that it was not possible to make any progress during the war towards the building of steel ships and that encouragement of wooden ships alone was possible.

Indian Shipping during Inter-war Period: The Scindia Steam Navigation Company Ltd. was started in 1919 with a passenger steamer and six cargo boats. Its history has been for the national shipping companies a sad story of ceaseless struggle and sacrifice; a painful chapter of bitter disappointment at the lack of response from the then Government of India to their demand for stability and expansion.

The inter-war period, 1919-1939, is important. During these twenty-one years, most maritime countries of the world tried to build up their merchant fleets. Every maritime country of any importance had for reasons of national security and economic needs, increased its own fleet. What was happening in other parts of the world was, however, of no concern to the Government of India. India continued to be a glaring exception to the recognition of the duty of the State to develop a national merchant marine. The patronage of the Government and all that went with it were enjoyed by the British Indian Steam Navigation Company (B.I.S.N.). It received subsidies for the carriage of mails and had first admission to the docks. Government servants proceeding abroad travelled by the P & O (The Peninsular & Oriental Navigation Company) of the same group. During the thirties, Government servants were even compelled to travel by these services at the risk of being penalized.

During the twenties and thirties, all the Indian companies, newly started, found themselves opposed by the British interests. They were faced with ruthless rate cutting and severe competition from the British Indian Steam Navigation Company. Some of the Indian companies, financially sound and well-managed, had to be closed down. The Scindia Steam also had to experience the hostility of the B.I.S.N. in 1920 itself. This was by no means a new experience. When the freights on Indian yarn were so high as to make it impossible to retain the Chinese market for the Indian yarn, the late J. N. Tata chartered a few boats to carry the yarn at reasonable rates. The P & O would not tolerate the entry of any Indian enterprise into overseas trade which it held to be its monopoly; it slashed the rates from Rs. 16/- to Re. 1/- per maund. When the Indian company withdrew from so relentless a competition, the rate was raised from Re. 1/- to Rs. 17/-. The Bengal Steam Navigation Company, which went into liquidation in 1910, had, when it came into existence, to face a rate war in 1905 on the Chittagong — Rangoon run, when the B.I.S.N. cut the fare from Rs. 12/- to Rs. 6/- per deck passenger and the rates from Rs. 14/- to Rs. 4/- per maund, adding free distribution of sweets and handkerchiefs to its patrons. When the Indian company was driven to the wall, the B.I.S.N. raised the fares to Rs. 14/- to make up for the loss from the rate war.

In the early thirties, four small Indian companies, the Eastern Navigation Company, the Malabar Steamship Company, the Merchant Steamship Navigation Company and the National Steamship Company had to face cutthroat competition from the B.I.S.N. and the National Steamship Company even ceased to exist. No company was secure till it found a place in one of the Shipping Conferences and even after being admitted, it had to submit to the decisions of the predominant partner, the B.I.S.N.

Indian Mercantile Marine Committee: Following the adoption of a resolution in the Council of State in March 1922, the Indian Mercantile Marine Committee was appointed to consider measures to be taken for the development of shipping and shipbuilding.

The Committee, reporting in 1924, recommended:

I. Reservation of coasting trade by a system of licences which should be issued on the following conditions:

(1) To no foreign ship except in so far as protected by treaty rights.

(2) To any ship flying the British flag provided that (a) it has been regularly engaged in the coasting trade during the preceding twelve months and is not more than 25 years old, (b) the owner undertakes to take Indian apprentices and Indian Executive Engineer Officers on scales recommended. and (c) the licence shall continue only until the ship has reached the age of 25 years.

(3) Any ship hereafter seeking to enter the coasting trade shall comply with the conditions that the ownership and controlling interest shall be predominantly Indian, *viz.*, (i) registered in India and (ii) owned and managed by an individual Indian, or by a company registered in India with rupee capital, with a majority of Indians on its Dirctorate and majority of its shares held by Indians

II. Purchase by Government of one of the existing British lines operating on the coast and its eventual transfer by sale to Indian owners.

The Committee also recommended that, if the Law Officers of the Crown held that the licensing proposals conflicted with Section 736 of the English Merchant Shipping Act 1924, either the Act should be amended or Indian-owned and Indian-managed ships should be assisted by (i) bounties; (ii) mail contracts; (iii) carriage of Government stores. whether in the coasting or in the overseas trade

Several attempts were made to reserve coastal traffic to Indian ships. The bill introduced by S. N. Haji in 1928 lapsed on the dissolution of the Central Assembly. A conference convened by the Government of India in 1930 with the representatives of all interests concerned with a view to contributing to a solution for the adequate participation of Indian shipping in the coastal and overseas trades of India and to securing, if possible, an agreed settlement, broke up without any agreement. The breakdown was attributed to the complete apathy of Government in protecting Indian shipping interests and the powerful opposition of the foreign lines. On April 1, 1934, a Tripartite Agreement between the B. I. S. N. Scindia and the Asiatic Companies provided for (a) the cargo carried by the vessels of the three companies in the coasting trade of

India, Burma and Ceylon, being regulated and apportioned according to specified percentages; (b) the Scindia Company being permitted to carry passengers on the Rangoon-Coromandel coast and the Rangoon-Chittagong run; (c) the total gross tonnage of the Scindias being raised to 100,000 gross tonnes; (d) the rates of freight and fares for passengers being jointly fixed in writing by the parties after mutual consultation and consent, and strictly adhered to; and (e) any dispute or difference to be decided by arbitration. In addition, the Scindias agreed to respect the P & O Company's and B.I.S.N. Company's foreign (Overseas) trade and not to compete with them in these services. The agreement was to have expired in 1939, but the efforts to revise it did not receive any Government support and this agreement controlled the situation even after World War II.

The case of smaller companies operating in the west coast was the subject of intervention by Sir Joseph Bhore, the then Commerce Member, and a reservation of 85 per cent of the trades in these areas was secured for them by Government.

The Indian Mercantile Marine Training ship "Dufferin" was established at Bombay on December 1, 1927, initially for three years and continued thereafter as a permanent institution. Starting first on training executive officers, the Institution under-took training of Marine Engineers as from 1937. The "Dufferin" has over the years made an important contribution to the needs of Indian shipping. At the end of the first twenty-five years of its establishment, 575 officers trained by it were found serving in the Indian Navy and the merchant ships. By 1966-67, 2,026 had been trained at the " T. S. Dufferin". It has also in recent years extended its facilities to the neighbouring countries. The "Dufferin" has now been replaced by a new training ship Rajendra.

Post-War Shipping Policy: A change in policy was indicated in the Post-War Shipping Policy laid down in the Second Report on Reconstruction and Planning, issued in 1945, as follows:--

"For a country of its size, length of coastline and strategic position athwart one of the world's main sea routes, India possesses a distressingly small number of deep sea ships which, at the outbreak of war, stood at no more than 30 with a total of less than 150,000 tons gross. India's weakness in this respect has long been recognized, and the Government of India are pledged to a policy of assisting in the development of an Indian Mercantile Marine. So far, however, the action taken to implement this undertaking has been limited to the establishment of the "Dufferin" for the training of executive officers, the provision of special facilities for the training of marine engineers and to using Government's good offices to promote a settlement between the Indian and British

Companies operating on the coast with regard to the division of the available trade between them.

"The vulnerability of India's position has been revealed by the stress of wartime conditions, but by no circumstances more glaringly than by her inability to find adequate shipping from her own resources to provide for the transport of the food supplies required by her. The rectification of this state of affairs should be one of the immediate post-war objectives, not only for commercial reasons but also because the development of the Royal Indian Navy necessarily implies the concurrent development of the merchant navy.

"The acquisition of an adequate share in the world's carrying trade should be the aim of our post-war shipping policy, and to this end steps should be taken to secure for Indian shipping — (i) an increased share of the coastal trade, including trade with Ceylon and Burma (the present share is estimated at between 20-30 per cent); (ii) a substantial share in the near trades, *e.g.*, Persian Gulf, East Africa, Malay and the Dutch East Indies; (iii) a fair share in the Eastern trades, especially those trades of which Japanese shipping will have been dispossessed; and (iv) a fair share also in the trade between India, on the one hand, and the U.K., and the Continent of Europe and North America, on the other."

The Reconstruction Policy Sub-committee on Shipping was appointed on November 10, 1945 to recommend a suitable tonnage target for Indian shipping to be attained within a period of five to ten years and the percentage share of the maritime trade of India — both coastal and overseas, cargo and steamer — to be secured for Indian shipping.

The sub-committee submitted its report on January, 20, 1947. Defining Indian shipping as "shipping owned, controlled and managed by the nationals of India", the sub-committee recommended 100 per cent reservation of coastal trade, 75 per cent of adjacent trade, and 50 per cent of overseas trade. It also set a target of 2 million gross tonnes of shipping to be acquired within a period of five to seven years. Further, it recommended financial aid to Indian shipping companies engaged in overseas trade. As regards shipping organization, it recommended the setting up of a Shipping Board which would be "the spear-point of policy locally and internationally" with power to license coastal vessels and to suggest proposals for the removal of all evils of monopolistic exploitation. The Government of India generally endorsed the dynamic policy on shipping stressed by the sub-committee and its implications.

In accordance with the decision of the Government that the public sector should participate in the shipping industry, the Eastern Shipping Corporation was incorporated on March 24, 1950 with its Head Office at Bombay, as a public company under the Companies Act as a joint venture with the Scindia Steam Navigation Company, the latter holding 26 per cent of the shares and acting as Managing Agents. On August 15,

1956, the management was taken over by the Central Government and the shares owned by the Scindias were acquired in 1957. The Western Shipping Corporation, wholly owned and managed by Government was incorporated under the Indian Companies Act on June 22, 1956. In view of the practical difficulties in the day-to-day management of two separate companies and, as the merger of the two would eliminate duplication and lead to economy in the long run, the undertaking of the Western Shipping Corporation was transferred to, and stood vested in the Eastern Shipping Corporation, with effect from October 2, 1961, which was renamed "The Shipping Corporation of India Ltd." wholly owned by the Government. The authorized capital was Rs. 35 crores (combined authorized capital of the two companies) and the paid-up capital Rs. 23 crores. The trading activity of the Corporation — transport of goods and passengers by sea — was carried on with its own fleet, as of February 1970, of 70 vessels which included cargo ships, passenger-cum-cargo ships and tankers to a total dead weight tonnage of 1,056,000.

The Western Shipping Corporation had acquired during 1960 the shareholding of 80 per cent (80, 180 shares) of the "Mogul Line", making it a subsidiary. As of 1970, the Line had a fleet of three passenger-cum-cargo vessels, a collier and a tanker aggregating to a Gross Registered Tonnage (G.R.T.) of 42,500 and catering mainly to the pilgrim traffic on the India/Red Sea route. It is the oldest Indian registered shipping company, having been registered in Bombay on August 2, 1877 as the Bombay and Persia Steam Navigation Company. In 1939, the name was changed to the Mogul Line Ltd. With the amalgamation of the Western Shipping Corporation and the Eastern Shipping Corporation, it became a subsidiary of the Shipping Corporation of India. On March 30, 1952, the shares were transferred to the President of India and it ceased to be the subsidiary of the Shipping Corporation as from that date. The policy of Government has been to extend and diversify the existing trade. It has resumed the shuttle services on the Madras/Rangoon route and is expected to operate colliers.

Terms of Financial Aid to Shipping: The expansion of Indian shipping since 1950-51 has been assisted by State financial aid to shipping. This has varied, in the case of overseas vessels, from 85 to 95 per cent for vessels built new and upto 75 per cent for second-hand purchases, the interest charged being 2½ per cent per annum and the rate being raised to 8 per cent in the event of default. The repayment of the loan is spread over a period of (not exceeding) 12 to 15 years in respect of new vessels and not exceeding two-thirds of the unexpired life in the case of second-hand vessels. The loans carry backing by adequate security acceptable to Government covering the amounts outstanding plus 33.33 per cent by mortgaging the vessels concerned and such other assets as

may be necessary. As regards coastal vessels, the loans, the quantum of which not exceeding 85 to 90 per cent for vessels built new and 66.66 to 75 per cent for purchases of second-hand vessels, are at 4 to 4.5 per cent per annum, subject to penal rate at 8 per cent per annum in the event of default. The loan will be spread over a period not exceeding 12 to 15 years for new construction and not exceeding two-thirds of the unexpired life of the second-hand vessels. The interest charged will be 4 per cent only if the loan is repaid within four years. The security for the loan is governed by the same provisions as for overseas vessels.

Government has a whole time officer as Government Director on the Board of each shipping company to which Government loans have been advanced for the acquisition of ships. He is charged with watching the interests of Government and sending periodical reports to it. In the case of smaller shipping companies, they are required in addition to implement any suggestion made by Government for better management of the company. The vessels subject to the loans are also required to be made available for periodical inspection by Government surveyors in regard to their maintenance and upkeep. In regard to all the vessels subject to Government loans, insurance against all risks (including war risk) for an amount 25 per cent in excess of the sums owing to Government is compulsory and the policies should be assigned to Government.

Progress of Shipping under Five Year Plans : The progress of Indian shipping is indicated in the Table below:

TABLE XVIII

Progress of Indian Shipping. 1947-1969, (select years)

Year	*Coastal*		*Overseas*		*Total*	
	No.	*G.R.T.*	*No.*	*G.R.T.*	*No.*	*G.R.T.*
1947 (Aug. 15)	48	119,000	11	73,000	59	192,000
1951 (Apr. 1)	71	205,699	23	166,679	94	372,378
1955 (Dec. 31)	92	220,960	33	255,347	125	478,307
1960 (Dec. 31)	98	315,397	74	528,619	172	844,016
1965 (Dec. 31)	110	337,895	116	1,122,086	217	1,459,981
1969 (Dec. 31)	80	304,532	174	1,948,238	254	2,252,770

The number of passengers carried on coastal and overseas trades by the Indian shipping companies, shown in Table XIX, indicates a considerable decrease in 1963 under Coastal Services as compared with 1951.

The freight and passenger earnings of Indian shipping companies since 1947 may be seen from Table XX. Taking the total earnings. there has been an increase of 557 per cent as compared with 1947-48.

TABLE XIX

Number of Passengers Carried by Indian Shipping Companies, Select Years (1951-1968)

(In thousands)

Year	*Coastal*	*Overseas*
1951	1,336	66
1956	941	86
1961	903	131
1962	978	128
1963	806	119
1964	964	122
1965	895	113
1966	924	113
1967	810	97
1968	740	103

TABLE XX

Freight and Passenger Earnings of Indian Shipping Companies, for Select Years (1947-1969)

(In crores of Rs.)

Year	*Coastal*	*Overseas*	*Total*
1947-48	6.22	2.59	8.81
1950-51	9.19	7.29	16.48
1955-56	10.77	13.42	24.19
1960-61	13.74	30.29	44.03
1961-62	12.85	31.66	44.51
1962-63	16.31	34.29	50.60
1963-64	14.78	43.13	57.91
1964-65	13.35	31.36	64.71
1965-66	12.43	55.66	68.09
1966-67	14.60	92.91	107.51
1967-68	12.80	108.50	121.30
1968-69*	10.83	121.29	132.12

*Approximate

Sailing Vessels Industry: During the latter part of World War II, the sailing vessels traffic on the west coast was organized under the Defence of India Rules, with a view to affording relief to the railways and coastal shipping in the movement of essential items. During 1944-48, the sailing vessels had assisted in the movement of approximately 1.7 million tonnes of cargo. As, with the termination of control, the cargo as well as freight declined, the Government appointed, on representations from the industry, the Sailing Vessels Traffic Development Committee on May 24, 1948, to examine and report on the steps necessary to ensure the fullest utilization of country craft (sailing vessels), to sustain and develop the economy of the country and *inter alia* to prevent wasteful competition between country craft and steamers, due regard being paid to the differing needs served by the two classes of transport.

The committee submitted its report in May 1949. Its findings were

that the sailing vessel had to be a considerably much more safe, expeditious and efficient unit of transport than it was, that the personnel afloat had to be considerably much more trained, competent and reliable and that the trade had to be reorganized, preferably by voluntary action. A number of detailed recommendations were made by the committee, such as bringing sailing ships within the scope of the Merchant Shipping Act, registry of such vessels etc. The recommendations were broadly accepted by Government and a special organization was set up in the Directorate-General of Shipping to implement Government policy in regard to the development of the sailing vessels indusry.

A scheme has been prepared for the grant of loans for the mechanization of existing sailing vessels and for the construction of new sailing vessels, and it has been decided to place the funds at the disposal of State Governments which will disperse the loans to owners of vessels through co-operative societies. A Central Advisory Committee for Sailing Vessels has also been constituted to advise Government on major problems of an all-India character. In order to deal with local problems and to assist in the organization for the development of the industry region-wise, four Regional Advisory Committees have also been appointed at the ports of Bombay, Jamnagar, Tuticorin and Masulipatam.

There were, as on January 1, 1967, 3739 sailing vessels, including 103 mechanized with a carrying capacity of about 240,000 Dead Weight Tonnage (D.W.T.).

Merchant Shipping Act 1958: The Merchant Shipping Act enacted by Parliament came into effect on October 30, 1958. The Act is intended to foster development, and ensure the efficient maintenance, of the Indian mercantile marine in a manner best suited to serve the national interests. It provides for the establishment of a National Shipping Board, a Shipping Development Fund and the registration of Indian Ships. All the statutory rules, regulations, orders, etc., under the Act have been brought into force on January 1, 1961.

Shipping Development Fund: Among the statutory bodies created under the Merchant Shipping Act 1958, is the Shipping Development Fund Committee. This committee has been set up to provide financial assistance to Indian shipping companies for the acquisition of tonnage. The Merchant Shipping Act, 1958, provided for the establishment of a non-lapsing fund on a statutory basis. The fund, which was established in March 1959, is intended to serve as a continuous source of finance from which loans can be granted to Indian shipping companies.

The Government of India has been giving financial assistance to the shipping industry since the beginning of the First Five Year Plan in the

form of loans to the shipping companies in the public and private sectors for the acquisition of ships and for investment in the public sector shipping companies. During the period of the First Five Year Plan, a total amount of about Rs. 18.7 crores was spent. The total provision for the Second Five Year Plan was Rs. 54.25 crores for the expansion of tonnage. Of this, a sum of Rs. 18.83 crores was invested in the public sector shipping companies and a total sum of Rs. 23.44 crores was advanced as loans to the shipping companies. The balance of Rs. 11.9 crores was advanced to the Shipping Development Fund. The Third Plan expenditure was Rs. 40 crores. The expenditure during the annual plan periods of 1966-69 was Rs. 25.4 crores.

The outlay for the Fourth Plan is Rs. 140 crores, of which Rs. 135 crores are for the acquisition of ships. By the end of the Fourth Plan a target of 3.5 million G.R.T. is expected to be reached.

Shipbuilding: The construction of a shipyard at Visakhapatnam was the first major enterprise of its kind in the country. Although the progress of construction was interrupted since the beginning in June 1941 owing to the war, it was completed by stages by 1946 on 21.85 hectare with two berths, the total provision being for eight berths and necessary workshops. To start with, it was financed entirely by private enterprise, namely, the Scindias who got four 8,000 tonners built for their own use. Owing to high costs of construction and the inability of the Scindias to keep the yard going, Government assistance was given by placing orders for three ships. Government, however, decided to take over the yard and, on January 21, 1952, a private company called the Hindustan Shipyard Ltd., was formed and on March 1, 1952, the yard was taken over by it at a valuation of Rs. 2.72 crores. Two-thirds of the shares, valued at Rs. 2.09 crores were taken by Government, the remaining third being retained by the Scindias. A debenture loan of Rs. 60 lakhs given during 1952-54 was later converted into share capital, the Government holding thus being raised to Rs. 2.69 crores. On March 31, 1961, Government acquired the shares of the Scindias also, namely, Rs. 104.25 lakhs, for Rs. 80.38 lakhs.

Government has been bearing the difference between the actual cost of construction in the yard and the cost of similar ships in the U.K. which is the price at which these ships were sold by the Hindustan Shipyard to the shipping companies. Soon after the formation of the company, an agreement was entered into in July 1952 with the French firm of shipbuilders "La Societe Annonyme Des Ateliers et Chantiers de La Loire" (The "A C L") for technical aid in management and operation of the yard.

The yard has been developed to enable it to construct ships of various sizes. In recent years it has been building overseas liner vessels of

about 10,000 to 12,000 D.W.T. From being able to build three ships a year, its capacity is being increased to building six ships a year.

A second shipyard is to be constructed at Cochin and 25.6 hectare of land have already been acquired, leaving an area of 13.6 hectare to be handed over by the Kerala State Government. The shipyard is to be constructed in collaboration with Messrs Mitsubishi Heavy Industries, Japan.

VI. Ports

Although the geographical position of India is favourable for international trade in view of the projection of the great peninsula into the Indian Ocean and the long coastline presented to the navigator facing west, there is a singular paucity of large natural harbours. On the west coast, during the monsoon months, navigation practically ceases when the rocky shores are furiously beaten by wind and waves. During this period, at only a few ports on that coast is an intermittent activity permitted. On the east coast of India, the absence of natural harbours is even more striking. However, the natural deficiency has been overcome by human effort, as typified by the case of the Madras Port.

Extensive maritime trade with countries to the east and west of India more than two thousand years ago, as referred to earlier, had made many of the ports of call on the coast of the sub-continent well-known to sailors and merchants of antiquity, such as Bharugachha (Broach), Naura (Cannanore), Comari (Cape Comorin), Postuea (Pondicherry) and Camara (Kaveripatnam). The importance attached to ports and harbours during the Mauryan times is seen in the details relating to their maintenance and administration in Kautilya's *Arthasastra*, such as the references to the department responsible for controlling ports and harbours and the functions of the State officer who helped boat fleets which had lost their courses in unfavourable winds, collected taxes on boats and ships, etc. Many of the ports and harbours must have maintained their activities in connection with foreign trade in the following centuries.

The advent of European powers and their settlements for trade led to the beginnings of those large ports which have now come to handle the bulk of the country's international trade. Till the supremacy of the East India Company was established, the struggle for power between the Portuguese, Dutch, French and English led to the setting up of a number of settlements on both Malabar and Coromandel coasts as well as to the north of these coasts. The ports which were developed by the East India Company, namely, Madras, Bombay and Calcutta, emerged later as the most important ports. To these were later added Karachi, Cochin and Visakhapatnam. Prior to independence these six constituted

the principal ports. The great bulk of India's foreign trade prior to the partition used to be concentrated at Karachi and Bombay, these being the principal channels for the trade of north-western and western India. There were, however, a large number of smaller ports used by smaller vessels and other craft.

Beginnings of Calcutta, Bombay and Madras Ports: The East India Company established a factory in 1690 at the site of Calcutta, about 129 km. up the river Hooghly. Until the opening of the Suez canal and the linking of the interior with Bombay and Karachi, the trade of India with foreign countries was largely conducted from Calcutta. By 1864, railways extended from Calcutta to Delhi, the line being laid through the most productive tracts of northern India and following, in the main, the course of the Ganga, which was formerly the easiest highway of commerce, and the Grand Trunk Road. The extension of the railway system in north-eastern India added year by year to the sphere of influence of Calcutta as a port and a distributing centre. To meet the requirements of its increasing trade, it became necessary to improve the conditions of the port. The primitive system of mooring in the stream and loading and discharging the cargo by lighters was superseded by the construction of jetties and wharves along the Calcutta foreshore of the river, and later by the construction of docks at Kidderpore to which railway wagons could bring merchandise alongside the steamers. At the same time, the service of steamers on the river highways between Calcutta and Assam was greatly improved and developed to meet the rapidly increasing needs and output of the tea estates. The reduction of rates between Calcutta and Rangoon stimulated the trade of the former with Burma. Still greater came to be its importance with the rise of industrial enterprise and the exportation of jute and jute manufactures from the port to all parts of the world. From small beginnings, the port has grown to the size of a major port of international importance.

The East India Company, which had, after defeating the Portuguese, established itself at Surat, foresaw the future of Bombay. In 1668, the island was transferred by Royal Charter to the Company for an annual rent of £10 by Charles II who had obtained it from Portugal as part of his marriage contract. The East India Company thereafter promulgated measures for the encouragement of trade to and from Bombay. The construction of a Custom House, a warehouse and a mole capable of berthing small ships was taken in hand and a shipwright was sent out from England to supervise the Company's shipbuilding operations. Gerald Aungier, President of the Surat Council and Governor of Bombay, thus summed up the natural advantages of Bombay: "The great bay or port is certainly the fairest, largest and securest in all these parts of India, where a hundred sails of tall ships may ride all the year

safe with good anchorage." Development of communications with Bombay, though it started earlier than in eastern India, was not completed till a later date owing to the difficulties of the approaches to the island from the interior. The absence of docks also prevented trade during the monsoon months. The cotton famine, caused by the American Civil War, 1861-66, gave an enormous impetus to the trade and prosperity of the city. Although this was followed by the most severe commercial crisis recorded, recovery was rapid, aided by the completion of the extension of railways to Jabalpur and Nagpur, and to Delhi and Agra. The opening of the Suez canal in 1869 also contributed to the great impetus given to the trade of western India with the West in the period following 1870 and this raised Bombay to the level of Calcutta as a commercial centre. The construction of the docks enabled the export business to be carried on all the year round without interruption by the elements.

The first Madras harbour was the Fort St. George, founded by Francis Day in 1639 on a sandbank at the mouth of the Cooum River to provide a safe place for the ships and the trade of the East India Company. There was no harbour at all in the usual sense, no pier or jetty even, nothing but a beach and very little of that. There was no trade in stormy weather and ships avoided the monsoon months. It was only in 1875 that attempts were made to construct a harbour by creating an artificial breakwater bounded by walls running into the sea, enclosing a space 0.91 km. (1,000 yards) long and 0.76 km. (830 yards) broad at a maximum depth of 7.5 fathoms. The harbour walls and piers were completed in 1881 and the harbour was fully opened to shipping. The area was calculated to afford shelter to 13 ships of various sizes, from 4,000 to 700 tonnes. A severe cyclone in November 1881 caused considerable damage to the works and, besides minor damages, two Titan cranes were thrown over and destroyed. It was not until Sir Francis Spring took up the matter in 1904 that the proper construction of the Madras harbour did actually begin. A new north entrance was opened in 1910, giving for the first time calm water inside the harbour. With the addition of a boat basin on the south side of the harbour, a timber pond and a slipway, as well as the construction of warehouses and provision of railway lines together with cranes and other facilities, the port had most of the improvements required to attract more trade to it.

Ports during Second World War: The working of the ports was affected by Japan's entry into the war. With the Japanese occupation of Burma, the Bay of Bengal was closed to shipping and the ships on the east coast were evacuated and the country's seaborne trade was diverted to Bombay, Karachi and Cochin. The situation was aggravated by the large influx into Indian ports of 'frustrated' cargo from Malaya and the

Netherlands East Indies and the arrival of military reinforcements on a large scale resulting in acute congestion on the west coast ports and serious delays to shipping.

On the recommendations of an Anglo-American Shipping and Ports Commission which visited India in November 1942, steps were taken to provide additional lighterage and lighter frontage to receive traffic in Bombay, new port equipment, especially cranes, in Bombay and Cochin, improvements to water facilities and oil discharge arrangements in Bombay and Madras, new barges at Cochin and lighterage at Visakhapatnam.

There was a swing of traffic in 1942-43, the brunt of which fell on Calcutta, and to cope with this a new modernized berth in Kidderpore Dock, two new ships berths and three flat-loading berths in King George's Dock were provided. Certain development works were also executed by the Army at Visakhapatnam.

In 1945, the Bombay Port experienced a major disaster from two large explosions in ships berthed in the Victoria Dock, resulting in heavy loss of life, damage to port installations and property.

Ports Technical Committee 1946: In 1945, an Inter Departmental Committee expressed the view that, although the existing capacity was adequate to meet the traffic offering, it was necessary to look ahead and keep ready plans for extending the port facilities. The Ports Technical Committee 1946 also supported this view and observed:

"If Government are resolved that the sea path round the coast of India is to be put to its best possible use, it is not only necessary that ports, major and minor, should be fitted to pass the trade but also that steps should be taken to rationalize the means of transport both by sea and land and discourage, in the national interests of the country, any unfair and uneconomic competition on the part of either."

"Finally, ports are vital links in the effective and efficient working of transport both by sea and land. And, while the establishment and expansion of ports will have to be related to the general development of trade and transport in the country, the Committee is convinced that the planning of ports and their construction and the service which they have to provide should, in the national economy of the country, precede the anticipated developments and needs of transport."

Recommending the development of Visakhapatnam Port as a deep sea port capable of accommodating ships upto 25.5 metre in length and draughts upto 9.1 metre with improvement of the entrance and the building of a dry dock and provision of other facilities, the committee stated that this should be taken up immediately, the entire finance for the project being found by the Government of India.

The policy recommended by the Ports (Technical) Committee was to

be based on the following broad considerations:

(a) the economic indivisibility of British India and Indian States;

(b) the increasing requirements of India's rapidly expanding agriculture and industries, as also the desirability of the dispersal of industries;

(c) the integration and implementation of a comprehensive, well-balanced and efficient policy of transport and its effective development in all its forms;

(d) the routing of trade through ports not to be influenced by customs policy;

(e) the need for a long view in the siting of new ports and the development of existing ones;

(f) the evolution of a sound policy of defence for the whole country;

(g) the geographical position and importance of India in the Indian Ocean; and

(h) the strategic importance of India in the development of a World Order in the Far East.

Effects of Partition: As a result of the partition of the country, two major ports, Karachi and Chittagong, went to Pakistan. In view of this, the trade formerly handled by Karachi had to be diverted to Bombay. The need for another major port on the west coast was felt and the West Coast Major Port Development Committee 1948, was appointed to investigate the location of a deep sea port on the stretch of coast covering Kathiawar and Kutch. The committee recommended the establishment of a port at Kandla in the Gulf of Kutch, the location of another port at Malpe and the development of the Bhavnagar Port. The Government of India, accepting the recommendation relating to Kandla, proceeded with the development of the port. The scheme also included the establishment of a township, Gandhi Dham, adjacent to the port.

Characteristics of Major Ports and Minor Ports: Under the Constitution major ports continue to be a Central subject, while minor ports appear in the Concurrent List. As from February 1, 1951, major ports have been placed under the administrative control of the Ministry of Transport, which is responsible for the general transport co-ordination and administration of major ports, marine shipping, lighthouses and inland water transport. A port is declared a "Major Port" if, by reason of the size and importance, it is taken under administrative control of the Central Government. According to the Ports (Technical) Committee, "the sheltered nature of a port, the well laid out approach channels, the provision of docks, jetties and moorings, the well laid out transit sheds, the effective rail connections, the ability to serve a very large portion of the hinterland lying behind the port, the facilities for meeting

the requirements of defence and strategy, the comparatively large volume of traffic and possibilities of work for shipping all the year round, usually distinguish a major from a minor port." The West Coast Major Port Development Committee added to these another criterion also, namely the ability to turn round the ship quickly. All major ports are capable of taking in ocean going steamers with a registered tonnage of 4,000 or more and berth them along their wharves.

Ports other than "Major" are classed as "Minor' and these present an amazing variety in size and functions, volume of traffic handled, financial position and administrative set up. The facilities provided may vary from nothing in some of the roadstead ports on the seaboard to fine elaborate harbours with dredgers and equipment, as in Saurashtra, from ports handling a few hundred tonnes to as much as half a million tonnes a year, from ports having an income of a few hundred rupees to those having a revenue of Rs. 6 to 8 lakhs a year, from ports well and efficiently administered to those which "also run". "Minor" ports are subject to the administrative control of State Governments which have complete responsibility for the running of these ports.

Intermediate Ports Development Committee 1958: The Government of India appointed the Intermediate Ports Development Committee in October 1958 to make recommendations regarding development of 'Intermediate' ports, ports which should be classed as coming between the "Minor" and the "Major" ports.

The committee submitted its report on April 30, 1960. The main recommendations of the committee were:

(i) **First Priority Works (Rs. 621 lakhs):** for the ports of Paradeep, Kakinada, Masulipatam, Cuddalore, Nagapattinam, Tuticorin, Neendakara, Beypore, Calicut, Mangalore, Karwar, Redi, Ratnagiri, Surat, Broach, Bhavnagar, Veraval, Porbandar, Okha, Sika and Bedi.

(ii) **Second Priority Works (Rs. 422 lakhs):** for the ports of Paradeep, Kakinada, Masulipatam, Cuddalore, Nagapattinam, Tuticorin, Beypore, Calicut, Karwar, Ratnagiri, Bhavnagar, Veraval, Porbandar, Okha and Bedi.

(iii) **Third Priority Works (Rs. 42.5 lakhs):** for the ports of Cuddalore, Nagapattinam and Bhavnagar.

(iv) **Development of All-Weather Deep Draft Ports:** at Tuticorin, (first priority, Rs. 1,027.00 lakhs); Mangalore, (first priority, Rs. 1,270.00 lakhs); Paradeep (second priority, Rs. 954.00 lakhs); Porbandar (second priority, Rs. 525.00 lakhs).

(v) **Enlargement of the Dredging Pool for External Dredging:**

It was recognized that there was great scope for the improvement and utilization of many of the "Intermediate" and "Minor" ports at a

comparatively small capital outlay. A hydrographic survey of these ports and their approaches, a planned scheme of dredging, provision of modern cargo handling appliances, such as jetties, cranes and tugs or launches, amenities for passengers, etc. would go a long way to satisfy immediate needs.

Ports and Harbours under the Plans: The basis of classification of the ports other than "Major" is that those handling not less than 101,600 tonnes (100,000 tons) a year and considered otherwise important are "Intermediate" ports; those handling less than 101,600 tonnes (100,000 tons) but more than 5,080 tonnes (5,000 tons) a year are "Minor" ports; and the rest handling less than 5,080 tonnes (5,000 tons) a year are "Sub Ports".

The large scale programme of economic development of the country initiated with the commencement of the Plans imparted a fresh stimulus to the improvement and expansion of port facilities in the country. Owing to late start, the provision of Rs. 36.91 crores made for ports and harbours during the First Plan could not be utilized fully and only Rs. 27.57 crores were spent. Nevertheless, the programme undertaken was of great importance. The main objectives were to rehabilitate and modernize the facilities in all existing ports, to provide a certain amount of additional capacity at Cochin and Madras by constructing additional wharves and berths, to develop a new major port at Kandla, to construct a new marine oil terminal at Bombay, and to carry out some of the more urgent improvement measures at the important ports. The total capacity of the major ports during the First Plan increased from 20 million tonnes to 25 million tonnes. The developmental programmes, apart from the Kandla port and the township of Gandhi Dham, inluded the development of the Sonai yard into a central storage depot for ores, a Spur at Akra for training the river Hooghly, and the improvement of the railway yard at Kidderpore; these related to the port at Calcutta. At the Bombay Port, the more important projects were the Marine Oil Terminal Project, the electrification of cranes in the Alexandra Dock, the reconstruction of transit sheds in the Princes and Victoria Docks and the labour-housing scheme.

The Second Five Year Plan aimed at the completion of the projects commenced during the First Plan and the provision of additional berthing capacity at the ports of Calcutta, Madras, Visakhapatnam and Cochin. During the first two years of the Second Plan, there was severe congestion in the ports owing to large scale imports of heavy cargo.

In the Third Plan, along with the completion of the projects already under way in the previous plan, provision was made for the modernization and expansion of the docks in the Bombay Port. The capacity at the end of the Plan was expected to go up from 37 million tonnes to

49 million tonnes. With a view to ensuring the maintenance and preservation of the Calcutta port, two important schemes were later included, namely, (a) the construction of an ancillary port at Haldia, and (b) the construction of a barrage on the river Ganga at Farrakka.

Ports in the Fourth Five Year Plan: According to the estimates for the Fourth Plan, the proposal is to expand the capacity of the "Major" ports from about 55 million tonnes in 1968-69 to 77 million tonnes at the end of the Fourth Plan. The total cost of the programme for the development of "Major" ports included in the Central Sector is about Rs. 280 crores.

Principal Ports and their Plans — (i) Calcutta: The port of Calcutta is located on the left bank of the river Hooghly 129 km. downstream from the confluence of the Bhagirathi and Bhaireb Jalengi, the two spill channels of the parent river Ganga. The seaward approach to the port is at Sandheads, about 198 km. from Calcutta. Depths of water in the various bars and crossings in the navigable channel from the Sandheads to the port vary continuously, thereby necessitating maintenance dredging throughout the year on an extensive scale. These features, as well as the peculiar tidal conditions obtaining in the river, make pilotage compulsory and impose restrictions on the day-to-day drafts upto which ships entering and leaving the port are permitted to load. Dredging was first undertaken in 1907 and confined at the time to a few bars in the upper reaches. Now it has to be done from the main port area to the mouth of the river. The quantity of silt dredged every year has ranged from 10 to 12 million tonnes. The cost of dredging the Hooghly (including depreciation) has risen from Rs. 57.95 lakhs in 1948-49 to Rs. 350.00 lakhs in 1963-64 and Rs. 381.00 lakhs in 1964-65.

Calcutta port has two dock systems namely, the Kidderpore Docks and King Georges Docks, provided with a number of berths and facilities, such as transit shed, cranes for handling cargoes, including heavy lifts and rail facilities. There are a number of warehouses for storage of goods, dry docks for carrying out repairs to vessels and salvage craft to assist vessels in distress, which are provided by the Calcutta Port Commissioner.

Although the advisability of a subsidiary port nearer the sea than the port of Calcutta had been considered from time to time during the past ninety years, the need for it was felt with a degree of urgency only within the last few years. The deterioration of the river Hooghly, particularly above the Diamond Harbour, and the impracticability of meeting the situation by any modernization or extension of the existing port facilities at Calcutta made it imperative to provide for an alternative dock permitting deeper draft throughout the year and adequate to cope with the

present day tendency towards larger and deeper draft ships, particularly for bulk cargo. The question was examined by a committee appointed by the Government in 1954. Experts selected Haldia in the estuary as the best site for the purpose. About 90 km. downstream from Calcutta, Haldia, under development, is expected to be a supplementary port to Calcutta.

There are two major projects under way; one, the River Training Scheme, undertaken by the Calcutta Port for improving the navigability of the Hooghly, and the other, the Farakka Barrage Project, now in an advanced stage, for obtaining a perennial headwater supply to the Hooghly to remove the siltation of the river.

The traffic of the Calcutta port has declined from 11 million tonnes in 1964-65 to 7.86 million tonnes in 1968-69.

(ii) **Bombay** — The first enclosed dry dock at Bombay was constructed in 1875; the Princes Dock and the Victoria Dock were constructed in 1880 and 1888, respectively. In 1891 the Merewether Dry Dock was added. In 1914 the Alexandra Dock and the Hughes Dry Dock were constructed. Other facilities kept pace with these developments, such as the provision of transit sheds, warehouses, installation of cranes, bulk oil depots, the establishment of a Port Trust Railway and large depots for cotton, grain and other products.

Along the harbour front, there are a number of bunders or open wharves and basins, where the traffic carried by the coasting and country draft and oversea cargo from the Docks and the stream are handled. The bunders provide an aggregate total quay length of 8150 metres and are equipped with cranes. Transit sheds and warehouses at the port aggregate 308,000 sq. metres of port area. The Ballard Pier with 457 metres of extension of the harbour wall is used for large passenger liners. The marine oil terminal with three berths constructed during the First Five Year Plan was designed to take in large tankers of 30,000 G.R.T. and to handle about 9 million tonnes.

In the Fourth Five Year Plan, it is proposed to start work on two berths at Navah — Shera islands on the eastern side of the harbour as the first phase of development of a satellite port.

(iii) **Madras** — Madras Port is an artificial harbour of about 81 hectares encroaching into sea upto 9 metres contour from low waterline, enclosed with breakwaters and quays on all sides. The ships stay alongside the berths inside this basin or at moorings. The present capacity of the harbour, including moorings and oil berths, is 18 vessels. Owing to heavy swells during monsoon, oil berths outside the harbour are unusable for four months in the year. All the quays are served by a mixed gauge railway.

The first stage of the Wet Dcok scheme for new berths and works

designed to counteract the sand menace and facilities for handling an increased volume of cargo taken up during the First Five Year Plan was continued in the Second Plan. During the Third Plan, apart from the the completion of the projects already under way, provision was made for additional ore and coal yards and mechanical equipment for handling iron ore.

During the Annual Plans of 1966-69, a new project, the Madras Outer Harbour Scheme was taken up, which included provision for an ore-cum-oil dock. This will also cater to deep draft tankers, and ore carriers.

(iv) **Cochin** — Built in a fine natural harbour, giving access to about 201 sq. km. of navigable breakwaters, Cochin port affords even in the worst monsoon weather accommodation for vessels which can lie comfortably in the harbour and carry on landing and shipping operations without interruption. The main wharf of the port is in the Willingdon Island, 316 hectares created by reclamation. It has 16 stream berths, one being a swinging berth, capable of taking vessels upto 198 metres in length and 9.14 metres in draft. There are also three tanker berths. Cargo is landed and shipped into stream moorings by lighters, oil being handled by barges. The deep water wharf, 671 metres long, could accommodate four 137 metres vessels at a time. A small dry dock, 73 metres by 13.4 metres, is used to dock dredgers and other craft belonging to the port.

During the First Plan a new coal berth and an oil jetty were completed while construction of four additional wharf berths was in progress. During the Second Plan, provision was made for a coal berth, a berth at Fort Cochin, and the completion of four additional wharves. The programme during the Third Plan was mainly one of completion of the projects in progress and additional ore and coal yards and mechanical equipment for handling iron ore.

During the Fourth Plan, the development schemes relate to the construction of an open berth and the acquisition of equipment, such as *grab* dredger, tugs, water sarge, cranes, fork lifts and tractors.

(v) **Visakhapatnam** — There being no major port on the 1,449 km. long stretch between Madras and Calcutta, the need was felt even as early as the beginning of the century for providing another major port at Visakhapatnam, 784 km. north of Madras, which had the best natural facilities for development. Although sanctioned by the Secretary of State in 1909, it was postponed owing to difficulties of funds and the First World War. Construction was actually started in 1925 and after considerable dredging and reclamation work, a comparatively unimportant calling place was eventually converted into a major harbour with quay

berths, sheds and port facilities in 1933. The port was open to ocean going vessels in 1933; the Raipur — Vizianagaram Railway had also been opened by then.

The hinterland of the port comprises Andhra Pradesh, Madhya Pradesh, and Orissa—a region rich in agricultural produce, such as rice, tobacco, sugar, molasses, jute and ground-nut, and mineral ores like manganese and iron. Industries have also come up fast. Besides the shipyard and the oil refinery in the port area, there are several jute mills, sugar mills, paper mills as well as ferro-manganese, chemical and fertilizer factories in the adjacent area. The port also serves the Bhilai and Rourkela steel mills and other industries in their neighbourhood.

The port can accommodate 17 vessels at a time. There are four quay berths on the eastern side of the northern arm for accommodating four ocean going vessels at a time; two oil refinery berths for berthing two oil tankers on the northern side of the western arm, and three jetty berths which can accommodate three ships. There are also two deep dredged berths of 480 metres for ore-carriers with a mechanical iron-ore handling plant capable of loading 2,666 tonnes per hour.

A final investment decision taken on the Visakhapatnam Outer Harbour Project, estimated to cost Rs. 37 crores, has led to action being taken. The Outer Harbour is scheduled to be ready for receiving ships by 1974.

(vi) **Tuticorin** — As a port with maritime trade, Tuticorin Port is much older than Madras, having been in existence with a flourishing trade in pearl fisheries from the time of the Pandyan Kings. It is the largest commercial town on the west side of the Gulf of Mannar. The port is an open roadstead, the anchorage being roughly 8 km. off shore, which renders loading and unloading operations extremely difficult at times of high seas and gales. The port is open throughout the year.

A project called Sethusamudram Project has been proposed, connecting the Gulf of Mannar and the Palk Bay by cutting a channel at the approaches of the Adam's Bridge enabling deep sea ships to navigate entirely in Indian territorial waters in safety from the west to the east of India. This will also result in saving shipping mileage equivalent to a day's sailing. It has been decided to carry out a complete and comprehensive investigation under the supervision of an experienced harbour expert to prepare a realistic estimate and a proper economic assessment of this project.

The conversion of Tuticorin into a "Major Port" has been taken in hand by the Government of India at a cost estimated at Rs. 24.50 crores. The project, with two break waters, 4,000 metres and 1.275 metres. to form a basin to accommodate six berths, is expected to be completed by the end of the Fourth Five Year Plan.

(vii) **Marmagao** — Prior to the liberation of Goa in 1962, the port of Marmagao was part of the Portuguese possessions in India.

Marmagao has great natural advantages. It is capable of berthing large steamers. The port has a quay, 925 metres long, protected by the breakwater (515 metres) and a mole (265 metres). To the north and east of the harbour shore is a large roadstead which can accommodate 50 or more ships in fair weather. During the monsoon, there are sheltered anchorages for 15 ships only. The principal commodity handled by the port is low grade iron ore, which accounts for 95 per cent of the traffic.

There is a mechanical ore handling plant with an annual turnover of about 1.5 million tonnes. The installation of modern handling facilities has been started. The development plans include the increase of capacity of the port to 10/12 million tons of iron ore, made up of the local as well as Ballary-Hospet ore, about 2 million tonnes of general (dry) cargo, and possibly some more additional capacity to take in coal for a steel plant, if it materializes.

(viii) **Mangalore** — The development of Mangalore from a lighterage into a "Major Port" was included in the Third Five Year Plan. The cost, as at present estimated, is about Rs. 22 crores.

The new harbour will be located at Panambur, north of the Gurpur river. The construction of the railway link from Mangalore railway station to the harbour is in progress. The entire project is expected to be completed during the Fourth Plan period.

(ix) **Paradeep** — The port of Paradeep, declared a "Major Port" on April 18, 1966, was developed at first by the State Government of Orissa in November 1962. The first stage of the construction consisted of dredging the lagoon with an approach channel from waves and siltation and an iron ore berth which can accommodate 61,000-tonne ore carriers. The project was taken over by the Central Government with effect from June 1, 1965. The first stage of development of the port to enable it to handle two million tonnes of iron ore was completed and export of iron ore was commenced on November 20, 1966.

The ore-berth is equipped with an ore handling plant designed to load 2,500 tonnes of iron ore per hour. The express way from Daitari to Paradeep has been completed. The only means of communication to the Port is road transport which can move 250,000 tonnes a month. The Cuttack — Paradeep rail link is expected to be ready by 1971-72. This will facilitate the handling of increased general cargo. Paradeep is the nearest deep sea port for the export of iron ore and other minerals from the mineral belt in the Bengal — Bihar — Orissa area. Its main problem has been the maintenance of the dredged depth of 12.8 metres.

The traffic of the major ports for select years during 1950-51 to 1968-69 is shown in the Table below:

TABLE XXI

Traffic of Major Ports, 1950-69 (select years)

(Tonnes in Millions)

Year	*Imports Tonnes*	*Exports Tonnes*	*Total Tonnes*	*No. of Ships Entered*	*Gross Tonnage*
(1) **Bombay**					
1950-51	5.27	1.73	7.00	..	..
1951-52	5.90	1.70	7.60	..	..
1956-57	8.37	3.80	12.17	2,640	14.04
1961-62	10.41	4.13	14.54	3,156	20.29
1963-64	11.19	5.46	17.35	3,276	22.56
1964-65	12.13	5.21	17.34	3,135	22.04
1965-66	12.98	5.14	18.12	2,958	21.72
1966-67	13.23	5.04	18.27	3,062	22.00
1967-68	12.44	4.52	16.96	2,768	19.71
1968-69	12.10	4.31	16.41	2,769	18.63
(2) **Calcutta**					
1950-51	3.09	4.53	7.62	..	..
1951-52	4.16	5.58	9.74	..	..
1956-57	4.42	4.59	9.01	1,383	8.56
1961-62	4.88	4.72	9.30	1,806	12.35
1963-64	6.03	4.91	10.94	1,828	13.00
1964-65	6.08	4.98	11.06	1,807	12.80
1965-66	5.28	4.57	9.85	1,623	11.38
1966-67	5.79	4.31	10.10	1,678	12.39
1967-68	4.89	4.10	8.99	1,461	10.83
1968-69	4.00	4.00	8.00	1,409	10.32
(3) **Madras**					
1951-52	1.88	0.30	2.18	1,091	..
1952-53	2.06	0.64	2.70	873	5.44
1961-62	2.27	1.20	3.47	1,230	8.53
1963-64	2.59	1.58	4.17	1,280	9.20
1964-65	2.99	1.41	4.40	1,345	9.58
1965-66	3.30	1.57	4.87	1,406	10.04
1966-67	3,87	1.99	5.86	1,447	11.32
1967-68	3.79	2.07	5.86	1,233	10.69
1968-69	3.02	2.36	5.38	1,114	9.43
(4) **Visakhapatnam**					
1950-51	0.07	0.89	0.96	443	..
1951-52	0.29	0.96	1.25	607	..
1956-57	0.50	1.02	2.52	497	..
1961-62	1.40	1.45	2.85	613	4.38
1963-64	1.85	1.67	3.52	681	5.30
1964-65	1.91	1.96	3.87	703	5.50
1965-66	1.89	2.57	4.46	626	5.22
1966-67	2.23	3.71	5.44	646	6.17
1967-68	2.41	4.09	6.50	590	6.19
1968-69	2.69	5.43	8.12	626	7.06

TABLE XXI (contd.)

(5) Cochin					
1950-51	1.12	0.25	1.37	..	..
1951-52	1.28	0.33	1.61	..	..
1956-57	1.33	0.43	1.76	965	2.88
1961-62	1.88	0.49	2.37	1,342	7.27
1963-64	2.03	0.42	2.45	1,356	8.09
1964-65	2.26	0.45	2.71	1.358	8.40
1965-66	2.41	0.46	2.87	1,178	7.22
1966-67	3.07	0.67	3.74	1,204	8.08
1967-68	3.73	1.69	5.42	1,209	9.07
1968-69	3,78	1.40	5.18	1,083	8.45
(6) Kandla					
1950-51	0.06	0.06	0.12	..	..
1951-52	0.07	0.06	0.13	..	..
1956-57	0.33	0.15	0.48	74	..
1961-62	1.11	0.27	1.38	230	1.73
1963-64	1.49	0.29	1.78	297	2.43
1964-65	2.05	0.26	2.31	346	2.89
1965-66	2 34	0.17	2.51	279	2.60
1966-67	2.42	0.24	2.66	293	2.69
(7) Marmagao					
1961-62	0.16	6.35	6.51	677	4.91
1963-64	0.12	5.84	5.96	594	4.73
1964-65	0.22	6.40	6.62	731	5.74
1965-66	0.24	7.62	7.86	834	6.49
1966-67	0.40	7.69	8.09	776	6.61
1967-68	0.42	7.71	8.13	676	6.50
1968-69	0.37	8.41	8.78	622	6.62

VII. Air Transport

The first aeroplane flight in India was in January 1911. In February of that year the first ever carriage of mails in the annals of world aviation history was done by a French pilot who flew across the Yamuna, from Allahabad to Naini, a distance of 9.66 km. and delivered official mail.

The earliest references to civil aviation in India are contained in the Indian Aircraft Act 1911 and the Indian Airship Rules 1913. The first proposal to use aviation for commercial purposes was made by G. R. Clark, Director-General of Posts and Telegraphs, in August 1919, suggesting the starting of a service for the carriage of mails. In the same year the Indian Aircraft Rules were framed which were to come into effect in 1921. On September 21, 1919, the constitution of an advisory body, the Air Board, was approved and, on March 5, 1920, a Chief Inspector to the Air Board was appointed. On January 22, 1920 a weekly air mail service between Karachi and Bombay was operated by the R.A.F., but this was discontinued after five weeks.

There were hardly any developments in the succeeding years. In

May 1926, the Air Board called attention to the fact that India was admirably suited for the development of aerial transport, the meterological conditions being excellent for many months of the year and there being no reason to believe that the difficulties occasioned by the monsoon, although serious, were insurmountable. Apart from the question of internal services, India's geographical position marked her out as an all important link in any air route between Europe and the Far East.

Scheduled civil air transport first came to India in the international field when, in 1929-30 the British, the French and the Dutch extended their respective Empire air services to and across India. The plans for an Indian State-operated service between Karachi and Calcutta had to be shelved because of the adverse financial position of the Government. resulting from the effects of the economic depression, and instead a charter agreement was made with the Imperial Airways Ltd. to operate a service between Karachi and Delhi. As this arrangement was found unsatisfactory from the point of view of the Government of India, it was given up in the middle of 1932, the Delhi Flying Club continuing the services to the end of the year for the carriage of mails only.

When the British Government extended their Empire services to Singapore, arrangements were made for Indian participation through the medium of an Indian company, the Indian Transcontinental Airways, in which the Government took a shareholding of 24 per cent. Not only was this arrangement financially unprofitable because of the fact that all managerial and operational responsibilities were with the Imperial Airways, but it afforded hardly any scope for Indian initiative or experience.

The credit of taking the first really effective step in the operation of internal air services in India goes to the Tata Sons Ltd. who, with two light-engined craft, organized, in October 1932, an air service from Karachi to Madras, on a frequency of one service a week with calls at Ahmadabad, Bombay and Bellary (later changed to Hyderabad). In May 1933, another company, the Indian National Airways, was formed with headquarters at Delhi and, in December 1934, it established an air service between Karachi and Lahore, linking with the Imperial Airways Service at Karachi. The main source of revenue for these services was the air mail contract with the Government for the carriage of mails by air, the rate of remuneration being covered by the air surcharge collected by the Posts and Telegraphs Department. The surcharged air mail revenue was not insubstantial as it included also the incoming overseas airmails to destinations in India. These airlines were given free air route organization and they operated with almost exiguous ground organization with little or no communications or navigational facilities.

By 1934, the Tata Sons doubled their weekly frequency on the Karachi-Madras route, and in 1935 they started a weekly service between Bombay

and Trivandrum with halts at Goa and Cannanore. In 1937 a bi-weekly service was run between Bombay and Delhi via Indore, Bhopal, and Gwalior. All these services were operated during the fair season only as the ground organization was unsuitable during the monsoon.

The Empire Mail Scheme, 1938: In connection with the introduction of the Empire Mail Scheme in 1938 it was decided to carry by air the whole of the letter mail between the Empire countries on the U.K.-Australia and the U.K.-Africa routes. The Government of India, in agreement with the Government of Ceylon (Sri Lanka) agreed to participate in the scheme, which, among other things, involved the provision of facilities for distribution within India of the Empire mail carried by the Imperial Airways to Karachi and taking in the reverse direction to Karachi all Indian mail destined for the Empire countries. The Government utilized for this purpose the existing services of the Tata Sons and the Indian National Airways, and entered into 15-year contracts with them for the carriage of mail on their routes under the Empire Mail Scheme.

The main points in the contracts were that (a) the Karachi-Madras route was to be extended to Colombo under arrangements with the Government of Ceylon (b) the services were to be operated with the same frequency as the Imperial Airways Service to Karachi, which was expected to be five times a week and connecting with it; and (c) the remuneration would be: (i) in regard to the Tata Sons a guaranteed payment of Rs. 15 lakhs a year for the carriage of mails on the Karachi-Colombo route upto 500,000 lbs. (2,26,800 kg.) plus Re. 1/- for each lb. (0.45 kg.) of mail extra, and (ii) in regard to the Indian National Airways a guaranteed payment of Rs. 3.25 lakhs a year for the carriage of mail on the Karachi-Lahore route upto 130,000 lbs. (58,970 kg.) plus Re. 1/- for each lb. (0.45 kg.) of mail extra. The Government of Ceylon agreed to share the payment to Tata Sons to the extent of Rs. 4.5 lakhs per annum in regard to the conveyance of the mails on their acconut. These mail contracts included an element of financial assistance by Government intended to put companies on such a basis as to place their development on a reasonably secure position.

The operations on the two services commenced in February 1938. Quite apart from their helping to bring about a shift to larger aircraft and greater frequency, the services afforded the opportunity for the proper development of passenger and freight traffic by air in the country. Tiruchchirappali was added to the halts on the Karachi-Colombo route and, by October, the frequency was raised to five times a week by both the companies. The Indian National Airways also opened service, with a frequency of three times a week between Lahore and Delhi.

An experiment of cheap fare and high frequency was attempted, during 1937-39, by a third company, the Air Services of India, which,

during the fair weather season, operated air services from Bombay to a number of Kathiawar States and to Kolhapur six times a week. The high loads of passengers in these services demonstrated the convenience and advantage of air travel. The low fares, slightly above the second class rail fare, were less than the minimum costs of operation; these services had consequently to be closed down in 1939.

Progress of Air Traffic upto 1938: The progress of air transportation by 1938 is indicated by a few figures. In that year 8,353 km. of route were operated, the total kilometres flown exceeded 2.14 million, and the percentage regularity was 99.8. The volume of traffic carried on the different routes was as follows:

TABLE XXII

Volume of Traffic Carried by the Airlines, 1918

	Passengers carried	*Mails carried* (lbs.)	*Freight carried* (lbs.)
Karachi-Colombo	514	430,000	11,845
Karachi-Lahore	93	117,270	68
Bombay-Kathiawar	2,175	1,330	89,196

The development of air transport since 1932 proved that Indian airlines could organize and operate services efficiently on long and difficult routes and maintain a very high standard of regularity and safety as compared with most of the advanced countries. In the meantime, the Government extended and strengthened the ground organization, providing aerodromes, hangars, workshops, technical and administrative buildings, air route lighting, the training of "B" Licence pilots, etc. The pioneering companies had helped to lay firm foundations of scheduled air transport in the country.

War-Time Developments: The steady progress of civil aviation in India was suddenly interrupted by the outbreak of World War II. The Empire Mails Scheme had to be suspended, as the resources of the Empire air services had to be diverted to the requirements of defence. Likewise, the air transport services in India were put on a war footing and run for the Government and the Defence Services. Although initially curtailed, the two companies, in collaboration with the Royal Air Force Transport Command, operated services for the Government in different areas with increasing intensities for the carriage of freight, military personnel, mails and civil priority passengers. In the later stages, these companies obtained Lease-Lend aircraft consisting of Expediters, D.C. 2's and D.C. 3's.

The routes operated during war-time were as follows:

Karachi-Colombo

Bombay-Delhi
Bombay-Calcutta
Bombay-Coimbatore
Bombay-Karachi
Bombay-Colombo
Delhi-Karachi
Calcutta-Dinjan
Calcutta-Jorhat
Calcutta-Gaya-Allahabad-Kanpur-Delhi
Delhi-Bhopal-Hyderabad-Bangalore-Tiruchchirappalli-Colombo
Delhi-Ahmadabad-Bombay
Delhi-Karachi
Lahore-Multan-Jacobabad-Karachi
Lahore-Gujarat-Rawalpindi-Peshawar
Lahore-Jacobabad-Quetta

War-time activities afforded the Indian airlines valuable experience in important items of special work, such as the survey of the Southern Arabian air route for the R.A.F., carriage of ammunition and supplies to Iraq, evacuation of civilian refugees from Burma, servicing, overhaul and maintenance of R.A.F. aircraft in their workshops, and opportunities to handle more modern aircraft and train and employ a good number of technical personnel. When the war ended, the companies equipped themselves with Dakotas purchased from the U.S. Foreign Liquidation Commission prior to the Government of India taking over the disposal stocks.

The striking increase in the volume of air traffic since 1939 may be seen from the Table below:

TABLE XXIII

Volume of Air Traffic during 1939-1945

Year	*Km. flown* (00s)	*Passengers*	*Freight in lbs.*	*Mail in lbs.*
1939	2,714	3,518	98,449	456,883
1940	2,181	3,646	48,852	118,101
1941	2,080	3,747	39,511	142,132
1942	2,606	4,659	163,242	342,921
1943	3,100	7,574	642,885	412,580
1944	3,413	13,433	1,163,725	370,659
1945	3,343	24,090	852,068	480,616

Post-War Developments: Before the war ended, the Government of India sought to lay down the future policy towards the development of air transport in the country. The policy outlined prior to the war was too limited in perspective and actual needs. India had adhered to the International Convention for the Regulation of Air Navigation signed in Paris in 1919, according to which she undertook, along with the other countries, to give certain general privileges to the aircraft of

the ratifying States and to secure uniform practice in such matters as traffic rules and standards for licensing pilots and aircraft

In 1926, the Indian Air Board recommended, among others, that (a) all landing grounds in India and their necessary equipment should be the property of the Government of India who should be responsible for the provision of wireless and meteorological facilities; (b) the Government should claim in future to be consulted at all stages on the terms of any contract for an external air service touching India and to participate as a principal in any such contract for an external air service touching India; and, (c) as far as internal air services are concerned, Government should accept the principle of subsidizing such services in the earlier years. The Government of India accepted these recommendations The really important and comprehensive statement of policy on the subject was made in the papers considered and approved by the Reconstruction (Policy) Committee for Posts and Aviation, in 1944:

"The policy of the Government of India is to permit the development and operation of air transport services, internal and external, by a limited number of sound and reliable private commercial organizations with their own capital and operated under normal commercial principles of risk of losses and prospects of gain. The operation of air transport services would be subjected to licences granted by Government. Without such licence no air transport service can operate. The grant of State assistance in specific cases will be entirely at the discretion of Government and on conditions to be laid down in each case. In specific cases, Government should take a financial interest in the Companies operating air services and appoint a Director on the Board. The Government should not, however, take a controlling share in such cases."

The Indian Aircraft Act and Rules were amended in March 1944 to license air transport undertakings and to prohibit all operations of air transport without a licence. The rules framed thereunder provided that, after October 1, 1946, no air transport service should be established in India except under the authority of, and in accordance with, the licence issued by an Air Transport Licensing Board In granting the licence the Board was to take into account (a) the proper development of air transport services in accordance with the needs of the public, (b) the potential traffic on particular routes, and (c) the adequacy or otherwise of the financial and technical resources of the applicant for satisfactory operation of air transport The Board was given power to prescribe the limits within which the passenger fares, freight rates and mail carriage rates could be fixed. The rules also required the submission to the Board by the operating companies of operational and financial returns showing their operational costs and traffic carried

Before the new arrangements could come into effect, two more companies for the operation of air services came into existence, namely, the Air Services of India, acquired and resuscitated by the Scindia Steam Navigation Company, and the Deccan Airways Ltd., in which the Hyderabad Government held a majority interest. Meanwhile, the Tata Sons converted its Aviation Department into a public limited company, the Air India, on July, 29, 1946. There were thus four companies which, on July, 1, 1946, operated the following routes:

(1) Tata Sons Ltd.,/Air India:
 (i) Karachi-Ahmadabad-Bombay-Hyderabad-Madras-Colombo.
 (ii) Bombay-Ahmadabad-Delhi
 (iii) Bombay-Nagpur-Calcutta
(2) Indian National Airways:
 (i) Calcutta-Allahabad-Kanpur-Delhi-Lahore-Rawalpindi-Peshawar
 (ii) Lahore-Bikaner-Jodhpur-Ahmadabad
 (iii) Delhi-Jodhpur-Karachi
 (iv) Delhi-Lucknow
 (v) Karachi-Quetta-Lahore
 (vi) Delhi-Gwalior-Nagpur-Hyderabad-Madras (operation of service discontinued July, 29, 1946)
(3) Air Services of India:
 (i) Bombay-Jamnagar-Bhuj-Karachi
 (ii) Bombay-Bhopal-Kanpur-Lucknow
(4) Deccan Airways:
 (i) Madras-Hyderabad-Nagpur-Bhopal-Gwalior-Delhi
 (ii) Hyderabad-Bangalore.

Soon after October 1, 1946, some more companies were floated for the operation of air services. By the beginning of 1947, there were 21 companies registered with an authorized capital of Rs 42 crores, of which Government had permitted the issue of Rs. 9 crores. Only seven of these new companies eventually obtained licences, namely,

(1) Mistri Airways (later Indian Overseas Airlines January 1946/September 1946).
(2) Bharat Airways, August 1945/June 1947.
(3) Airways (India), September 1945/April 1947.
(4) Orient Airways, June 1947 (Chittagong-Rangoon).
(5) Ambika Airlines (Kathiawar Area).
(6) Jupiter Airways (Madras-Delhi via Bezwada).
(7) Dalmia Jain Airways (Delhi-Srinagar).

These companies had acquired 115 Dakotas as against the requirements of only 40 such machines to operate the air services mentioned in

the post-war Plan. There ensued severe competition among the companies for the extremely limited number of technical personnel available in the country, thereby raising their wages and salaries to very high levels. A comparatively large number of aircraft and too little business, however, came in quite handy for meeting emergency situations which came in quick succession.

The traffic and finances of the airlines were adversely affected by certain other developments. The abandonment of the Empire Air Mail Scheme and the partition, as a result of which both the Air India and the Indian National Airways lost the mails traffic originating in Pakistan, and the desire of the Government of Sri Lanka to contract out of the agreement necessitated a revision of the Government's financial arrangements with the two companies. It was decided to let the Government of Sri Lanka to discontinue the payment of Rs. 4.5 lakhs per annum and to reduce the minimum guarantee of remuneration to the Air India to Rs. 10 lakhs and to the Indian National Airways to Rs. 1 lakh per annum.

Air transport played an important part in the situation created by the refugee migrations which arose in East and West Bengal in 1949 and the carriage of an unprecedented volume of traffic between West Bengal and Assam/Tripura owing to the cutting off of the surface routes between these areas The three regular operators in the area -- the Airways (India), the Bharat Airways and the Kalinga Airlines -- stepped up the frequency of their scheduled services and, as these did not meet the actual demands, scheduled operators based at other centres and a large number of non-scheduled operators also came into the field The situation gave rise to such undesirable practices as rate-cutting to uneconomically low levels, drift of operating personnel and other technical staff from company to company, crews working for excessive hours, overloading of aircraft, influx of middlemen as touts for canvassing traffic, etc. The Director-General of Civil Aviation tried to bring some sort of order in the situation and the acceptance of an agreed code of operating practices. The pressure of traffic continued till March 1949 after which the position eased. With the onset of the monsoon and the washing away of the Assam Rail Link, the demand for air transport again revived It was quite clear that air transport would always have an important part to play in the system of communications in this part of India.

To the financial difficulties of the airlines already referred to were added in 1949 the increase in expenditure on account of the rise in the price of aviation fuel and in staff costs The Government afforded relief to the companies by the grant of a rebate of import duty, on petrol used in civil aviation, of 6 annas per gallon (37.5 paisa per 4.5 litres) as

from mails was fixed at March 1, 1949, later increased to 9 annas (56 paisas.) The payment for the carriage of mails was fixed at freight rate plus 25 per cent instead of the Rs. 1-8-0 per lb. (Rs. 1.5 per 0.45 kg.) before the "All-Up" Mail Scheme, without the air mail surcharge, was also introduced with a view to affording the air companies the benefits of increased mails traffic and consequently of increased revenues.

During the latter part of 1948, the Government of India had under consideration the possibility of a scheme of carrying by night all the mails passing between the four main cities of India, namely, Calcutta, Bombay, Delhi and Madras. The operation envisaged night services on the Delhi-Nagpur-Madras and Bombay-Nagpur-Calcutta routes with four aircraft starting more or less simultaneously from Delhi, Madras, Bombay and Calcutta, in the early part of the night, meeting at Nagpur for exchanging the mails and returning to their respective starting stations the next morning. The mails posted at each of the stations till the evening would reach the destinations the following morning. Only the Indian Overseas Airlines, among the several air companies, offered to work the scheme without a guarantee of minimum payment or load or any higher rate of remuneration for carriage of mails than that already in force. The scheme was initially restricted to the carriage of mail and freight only, as night air mail operation was considered to be on an experimental basis and as the routes were not fully equipped from the point of view of passenger safety. The licence which was granted for one month from January 31, 1949, was later extended to the end of June 1949. The air mail carried upto March 31, 1949, was surcharged mail, and amounted to 48,000 lbs. (21,772 kg.) per month. With the introduction of the "All-Up" Mail Scheme, the volume of mails carried by the Indian Overseas Airlines more than trebled itself.

The day air mail services continued to carry mail posted after the departure of the night services. The scheme was unfortunately brought to an unexpected termination by the middle of 1949, as the Indian Overseas Airlines got into serious financial difficulties and had to discontinue its Madras-Delhi service on May 19, 1949 and the Calcutta-Bombay service on June 8, 1949. The night services were, however, kept in operation by the Deccan Airways between Madras and Nagpur and the Indian National Airways between Delhi and Nagpur under special terms. With the onset of the monsoon, the night services were terminated as the organization in existence was considered inadequate for operation during monsoon.

The Government's intention was to resume the night air mail services in October but practically none of the scheduled airlines was prepared to operate the services without a guarantee. The Himalayan Aviation, then a non-scheduled operator which offered to operate without a

guarantee, was given the licence by the Director-General of Civil Aviation for a period of three months as from October 31, 1949. As by then the ground facilities, the communications organization and the navigational aids on the Delhi-Nagpur-Madras and Bombay-Nagpur-Calcutta routes had been brought to such standards that carriage of passengers by night was considered safe, the Himalayan Aviation was also permitted to carry passengers on the night services.

Air Transport Enquiry Committee: The wisdom of admitting an additional operator into the field of scheduled air transport and giving it the bulk of the mail traffic was questioned by the existing scheduled airlines whose financial difficulties were aggravated by rising expenditure and want of adequate traffic. The fact that the Himalayan Airways was allowed to carry passengers on the night services at lower rates (112 per cent of First class rail fares) was also cited as another factor operating adversely on their own passenger revenues, and the situation called for a detailed enquiry into the air transport industry. As the Government felt that all was not well with the air transport industry, it appointed on February 8, 1950, the Air Transport Enquiry Committee with Justice G. S. Rajadhyaksha as Chairman. The committee examined the conditions of the various airline companies and found that there was a good case for air transport service being owned and operated by the State on the ground that a unit incharge of all operations could use the available resources to maximum advantage, that operations by a State organization would be an advantage from the point of view of Defence; that State management would tend to give better and cheaper service to the public; that a unified organization could take full advantage of technical development in air transport equipment and operational technique, and that, as the private airlines would require financial assistance from the Government to be placed on their feet, it would be preferable for the Government itself to run it in its own way. But in view of the complete changeover that nationalization would involve and the difficulties in getting the personnel with business and administrative experience, the committe recommended a scheme of reorganization with a view to rationalization. An ideal pattern would be to have four operators with bases at Bombay, Delhi, Calcutta and Hyderabad. As this was not feasible, the committee suggested the merger of the airline companies operating in the same area, such as the Bharat Airways, Airways (India) and Kalinga Airways and the Air Services of India and the Deccan Airways. As regards the subsidy to the industry, the recommendation was that it should be based on a 'quality standard cost' announced by the Government according to which any airline having revenues less than the standard would get a subsidy amounting to this deficit, while in the event of the cost of operation being less than the standard costs, 50 per

cent of the difference would be paid to the airline as bonus. The ceiling of the subsidy was 8 annas per gallon (50 *paisa* per 4.5 litres) of fuel consumed by the company. On representations from the Air Transport Association of India, Government decided to postpone the introduction of the new scheme of subsidy from October 1, 1950 to January 1, 1952.

Nationalization: The conditions in the air transport industry were disclosed to be such that, if it was to remain privately managed, substantial financial assistance from Government would be required for the replacement of the fleet, which had become long overdue. The industry was largely dependent on the Dakotas which had been released to operators after the war at very low prices. Their replacement would, therefore, mean a considerable financial outlay with no comparison whatever to the earlier investment. The Government, therefore, decided that, as considerable State assistance was inevitable, it was better to nationalize air transport. Following this decision, the Air Corporation Act was passed and received the President's assent on May 28, 1953.

In accordance with the Act, the undertakings of the Indian Air Companies operating scheduled services were taken over by two State Corporations, namely, the Air India International and the Indian Airlines, after payment of compensation as provided for in the Act. The Air India International took over the undertakings of the Air India International Ltd. The Indian Airlines Corporation acquired the following companies:

(1) Air India Ltd.
(2) Air Services of India Ltd.
(3) Airways (India) Ltd.
(4) Bharat Airways Ltd.
(5) Deccan Airways Ltd.
(6) Himalayan Aviation Ltd.
(7) Indian National Airways Ltd.
(8) Kalinga Airlines.

The Air India International was intended to operate a long distance international service, while the Indian Airlines Corporation was to operate the internal scheduled services and the air services to the neighbouring countries. The two corporations came into formal existence on June 15, 1953. On August 1, 1953 the Air India International took over, as a going concern, the assets and business of the Air India International Ltd. All the other air transport companies operating scheduled services in India were vested in the Indian Airlines Corporation In accordance with the Act the companies were to be paid compensation partly in cash but mostly in the form of 5-year Bonds, bearing interest at 3.5 per cent per annum and guaranteed by the Government of India.

Indian Airlines Corporation: The Indian Airlines inherited a fleet of 99. The effective strength of the fleet on March 31, 1954, was 87, namely, 3 Skymasters, 12 Vikings and 72 Dakotas. The first year following nationalization was one of exceptional difficulty owing to pressing problems of integration. The route pattern inherited by the corporation was revised with a view to eliminating wastage and meeting public convenience. This resulted in slightly higher utilization, specially in the case of the Dakotas. There was all-round improvement under every head of operation during 1954-55.

During the following years, the Indian Airlines Corporation followed a policy of a changing over to larger and faster aircraft. Dakota operation in India was not economical owing to its limited capacity, slow speed, scarcity of spare parts and high fuel costs. The replacement of the Dakotas by more efficient and modern aircraft had thus become necessary on grounds of both economy and efficient operation. In 1955, three more Skymasters were acquired for operating the night air mail services and orders were placed for eight Herons, which, however, were found later to be unsuitable. During 1957-58, the Viscounts — turbo-prop aircraft — were introduced on the trunk routes, offering greater comfort and convenience to the public. By 1958-59, 10 Viscounts had been placed in service. During 1961-62 five Friendship aircraft were added to the fleet and, in the following year, another five were also obtained in order to replace Dakota operation on the regional routes. The progress towards modernization reached a further stage with the introduction of the Caravelle Jets to take over important trunk routes from the Viscounts. The Caravelles are expected to do better than the Viscounts because of their passenger appeal and productivity. The Air India International has also loaned its surplus Boeing capacity on a regular and continuous arrangement. The remarkable change in the composition of the fleet of the Indian Airlines since nationalization is shown in Table XXIV A gradual reduction in the number of aircraft has come about as a result of the switch-over to larger aircraft.

There has been steady progress in both the earnings and the volume of traffic carried in domestic air transportation. Taking the figures of the first complete year after the corporation took over, the capacity provided in terms of available tonne-kilometres increased from 76 million to 208 million in 1968-69. During this period, revenue tonne-kilometres rose from 52.96 million to 153 million. The number of passengers increased from 478,000 to 1.89 million. The weight of mails carried advanced from 4,732 tonnes to 10,206 tonnes. The cargo traffic, however, recorded a drop from 51,014 tonnes to 23,102 tonnes.

The financial figures are even more striking. The capital increased from Rs. 5.07 crores, standing at Rs. 25.95 crores at the end of 1968-69 The capital employed during 1959-60 to 1968-69 went up from Rs. 13

TABLE XXIV
Composition of the I.A.C. Fleet
(1954-69)

Year March	*Dako-tas*	*Viking*	*Heron*	*T.B.*	*Sky-master*	*Vis-count*	*Friend-ship*	*Cara-velle*	*H.S. 748's*	*Total*
1954	72	12	—	1	3	—	—	—	—	88
1955	69	12	—	1	3	—	—	—	—	85
1956	66	12	8	—	6	—	—	—	—	92
1957	64	12	8	—	6	—	—	—	—	90
1958	62	12	7	—	6	7	—	—	—	94
1959	58	(12)*	3(4)*	—	5	10	—	—	—	76
1960	55	(12)*	3(4)*	—	5	10	—	—	—	73
1961	54	—	(7)*	—	5	10	—	—	—	69
1962	45	—	—	—	5	13	5	—	—	68
1963	43	—	—	—	3	13	10	—	—	69
1964	38	—	—	—	5	12	5	3	—	66
1965	36	—	—	—	3	12	10	4	—	65
1966	34	—	—	—	3	12	10	5	—	64
1967	32	—	—	—	3**	12	13	6	—	66
1968	29	—	—	—	3	14	15	7	4	72
1969	24	—	—	—	3	14	15	7	8	71

*Grounded Fleet **Operating Nil

crores to Rs. 46 crores. The operating revenues stood at Rs. 40.12 crores, as against Rs. 6.92 crores in 1954-55. Operating expenses also increased correspondingly from Rs. 7.73 crores to Rs. 36.55 crores.

The working results of the Indian Airlines Corporation closed with deficits in the first five years, aggregating Rs. 4.75 crores. During the next five years the total surpluses amounted to Rs. 1.49 crores only. Although this covers only about a third of the earlier losses, the gains have been progressive, increasing from Rs. 3 lakhs in 1959-60 to Rs. 3.57 lakhs in 1968-69.

The number of employees of the corporation went up from 9,324 to 15,597 in 1965-66.

On September 19, 1955, the Air Transport Council, constituted under the Air Corporations Act 1953, was requested by the Government "to study the general problem of fares and freight rates to be charged on the air services operated by the Indian Airlines Corporation and to draw up for consideration of the Government a set of principles on the basis of which such fares and freight rates should be determined." The council undertook a comprehensive study of all aspects of the problem. It submitted its report on May 1957. In line with the reemmendations of the council, the rationalization of the corporation's out-moded air fares was carried out.

The cost structure of the Indian Airlines Corporation was the subject of another enquiry in 1959 by a committee with Sir Stephen Wheatcroft as Chairman to see whether the corporation's system of planning, operation and cost control were as efficient as could be and to determine a formula for working out "standard costs" of operation

on the basis of which the losses of the corporation might be subsidized. While the committee found that the work of the Indian Airlines Corporation was generally that of an airline which operated an efficient network of air services, it had not yet adequately developed systems of commercial control which were essential for a large-scale business. The basis for ascertaining "standard costs" was also indicated.

Air India Internationals: The credit for taking the first effective step towards operating external air services goes to Air India, which proposed in 1947 to form a new company called Air India International for the establishment of an air service between India and the U.K. Air India International was registered on March 8, 1948, with an authorized capital of Rs. 7 crores and a paid-up capital of Rs. 2 crores. The Government subscribed 49 per cent, Air India 10 per cent and the public the balance. The company's service from Bombay to London *via* Paris and Geneva was inaugurated on June 8, 1948, with an initial frequency of one service a week, which was later increased to three services a week. A weekly service was started in 1950 between Bombay and Nairobi *via* Aden.

Since nationalization, the Air India has maintained a steady rate of growth in capacity and the number of places served. From a toal of three stations served in June 1948, Air India International has increased the number to 30 cities covering five continents over an unduplicated route system of 927,400 km.

In January 1954, Lockhead Super Constellations were introduced for the first time on Air India's route. In 1956, Air India decided to replace its fleet of Super Constellations with jets It was the first Airline in the world to have an all jet fleet. The Boeing engine base was located at Santa Cruz, Bombay.

The financial and operating statistics of Indian Airlines and Air India since nationalization are shown in the Tables XXV--XXX.

Non-Scheduled Operators: In addition to the scheduled operators, there are non-scheduled operators as well as charters permitted by the rules under a permit given by the Director-General of Civil Aviation. As the non-scheduled operators tend to have only the minimum number of aircraft, crew and engineering personnel, the grant of permits is subject to the Director-General satisfying himself as to the minimum requirements from the point of view of safety, operations and maintenance. There were on March 31, 1950 eight non-scheduled operators; ten scheduled operators also held permits to engage in non-scheduled operations. As at the end of 1969-70, the private airlines engaged in non-scheduled operations were: (1) The Air Survey Company of India, (2) Bharat Commerce and Industries Ltd., Bombay, (3) Airways India Ltd.,

Calcutta, (4) Jamair Company (P) Ltd., Calcutta, (5) Kalinga Airlines (P) Ltd., Calcutta, (6) Kasturi & Sons, (7) Cambata Aviation (P) Ltd., (8) Balaji Agencies, and (9) H. S Sobha Singh and Sons.

Civil Aviation Department: The Civil Aviation Department under the Director-General is responsible for the provision and development of civil aviation facilities in the country. In particular, it is responsible for providing the following facilities: (a) aerodromes, aeronautical communication and visual and radio aids to navigation and other facilities required by the civil aircraft; (b) inspection and registration of licensing of aircraft and aircraft personnel; (c) training in flying, air traffic control, aeronautical communications, etc.; (d) promotion of aeronautical research and development; (e) formulation and enforcement of civil aviation regulations; and (f) type certification of civil aviation aircraft and aeronautical equipment, aircraft design, and airworthiness requirements.

Aerodromes: Prior to partition, there were under the Dicctor-General of Civil Aviation 61 aerodromes, four of which were International, seven Intermediate and 32 Minor. The only airport of entry to India from the West prior to August 15, 1947, was Karachi. After partition, Bombay was developed to be the main airport from the West, together with Palam, in Delhi. Safdarjang, in Delhi was however, used only for smaller aircraft. At the end of December 1969, 85 aerodromes were being maintained by the Civil Aviation Department. Of these, four, namely, Santa Cruz (Bombay), Dum Dum (Calcutta), Palam (Delhi) and Meenambakkam (Madras) airports are international aerodromes. There are 11 major aerodromes, namely, Agartala, Ahmadabad, Amritsar' Begumpet, Delhi (Safdarjang), Gauhati, Jaipur, Lucknow, Nagpur, Patna and Tiruchchirapalli. The Intermediate airports number 38 and the Minor 32.

In order to cope with the rapidly growing requirements of air transport. considerable progress has been made in the progressive extension of runways, improvements to the terminal buildings at Delhi and Calcutta, turning pad for Boeing 747 at Delhi Airport; and navigational aids, communications facilities, tele-communication services, runway lighting, visual beacons, equipment for ground safety services, radio beacons including the initial development of radar stations, flying control, meteorological services, aeronautical information service, etc.

Aircraft Manufacture: Under the pressure of World War II, a beginning was made towards the creation of an aircraft manufacturing industry. The Hindustan Aircraft Ltd., subsidized by the Government, built a modern aircraft factory at Bangalore fully equipped for quantity production of aircraft. It was started in December 1940 by Walchand Hira-

chand in collaboration with the Government of Karnataka. The Government of India shortly thereafter became a member of the company; a year later it took over completely the private holdings. During the first three years, the Hindustan Aircraft built a few Curtiss Hawk fighters, Vuktee bombers and Harlow trainers. The manufacturing programme was suspended with the onset of World War II and the factory turned its attention to overhauling and repairing aircraft to meet the requirements of defence. By the time the war ended, the Hindustan Aircraft had overhauled hundreds of aircraft of different types like cargo planes, light bombers, heavy bombers, flying boats as well as Hero engines.

The manufacturing programme was revived after the war and, in 1946, the Hindustan Aircraft began erecting Tiger Moth Aircraft for the Air Force and the manufacture of Percival Prentice trainer aircraft. It also produced, out of what was left after the war, a number of serviceable aircraft, mostly Dakotas, for the newly formed Indian air transport companies. Its activities in the following years have been in connection with the developmental side of aircraft production and more closely associated with the defence requirements. Of the value of its sales, about two-thirds are under aircraft assembly manufacture and overhaul and servicing; the balance is under rail coaches and, until a few years ago, bus body kits and other jobs.

In August 1963, a new public sector company designated as Aeronautics India Ltd., was formed to manage the three separate factories concerned in the manufacture of the Mig-21 aircraft. In March 1964, it was decided to form a public sector organization by the merger of the Hindustan Aircraft Ltd., Bangalore, with the Aeronautics India Ltd. The merger was completed on October, 1, 1964, and the company was redesignated as Hindustan Aeronautics Ltd. To this was transferred the Aircraft Manufacturing Depot, Kanpur, which was set up in 1959 to undertake manufacture of transport aircraft. Fight of the aircrafts produced by it, namely. HS-748s were already in service with the Indian Airlines in 1968-69.

Five Year Plans for Civil Aviation: Between 1947 and the commencement of the First Plan, about Rs. 6.6 crores were spent on works relating to Civil Aviation. During the period of the first two Plans, the expenditure incurred amounted to Rs. 24 crores. The programme in the First Plan aimed at making good the deficiencies in aerodromes, communication facilities, equipment, etc. The Second Plan provided for the development of facilities to meet the growing requirements of domestic and international traffic and the new demand arising from technical advances and from India's obligations under the Convention on International Civil Aviation. In the Third Plan, the outlay on civil air trans-

port was Rs. 49 crores. During 1966-69, the three annual plan periods, the outlay was Rs. 66 crores. With the arrival of the jets, the ground organization and equipment called for new facilities.

The Fourth Five Year Plan provided a total outlay of Rs. 202 crores. This envisaged the improvement of runway terminal and communications facilities at the four international airports of Bombay, Calcutta, Delhi and Madras so as to make them suitable for operation of heavier and larger capacity aircraft like the Boeing 747 (Jumbo) Jets. The development of various airports for domestic services was also contemplated besides the replacement of the Dakotas by larger aircraft.

TABLE XXV

Financial Statistics of Indian Airlines

(Rs. in lakhs)

Year	*Capital*	*Reserve and Surplus*	*Total Capital Employed*	*Gross Block Fixed assets*	*Net Block*
1954-55	5,07.02	67.16	5,74.18	2,33.71	..
1955-56	7,58.68	124.00	8,82.68	4,47.75	..
1956-57	9,66.50	31.18	9.97.68	4,81.84	..
1957-58	14,19.46	14.04	14,33.50	9,04.69	..
1958-59	14,85.41	1.16	14,86.57	10,62.72	7,44.78
1959-60	15,27.81	1,92.82	17,20.63	10,72.77	6,67.93
1960-61	16,95.5?	12.49	17,08 01	10,86.54	5,91.06
1961-62	19,21.99	0.28	20,37.81	14,13.63	8,32.15
1962-63	21,47.99	71.11	22,19.10	16,35.64	10,05.31
1963-64	21,94 16	1,65.94	23,60.10	21,23.14	14.01.26
1964-65	21,94.16	3,20.95	25,15.11	23,66.03	14,42.94
1965-66	21,94.16	3,03.14	24,97.30	26,14.92	15,31.86
1966-67	21,94.16	4,64.51	26,58.67	36,66.47	23,37.26
1967-68	21,94.16	4,82.08	26,76.24	46,57.91	30,12.57
1968-69	25,94.16	6,53.59	32,47.75	51,18.56	30,96.57

TABLE XXVI

Operating Results of Indian Airlines

(Rs. in lakhs)

Year	*Operating Revenue*	*Operating Expenses*	*Operating Profit*	*Net Surplus*	*No. of Employees**
1954-55	6,92.47	7,72.51	— 80.04	— 90.15	.
1955-56	8,08.60	9,21.67	— 1,13.04	— 1,19.40	9,324
1956-57	8,61.35	9,61.78	— 1,00.43	— 1,08.79	9,254
1957-58	9,26.07	10,24.29	- 98.22	— 1,03.07	9,328
1958-59	10,82.49	11,70.15	— 87.66	— 91.19	9,263
1959-60	11,90.22	11,87.17	3.05	7.81	9,281
1960-61	13,06.27	12,98.95	7 31	4.68	9,390
1961-62	14,87.57	14,45.14	42.42	71.08	9,562
1962-63	16,97.19	16,64.70	32.49	60.91	10,075
1963-64	19,37.82	18,63.75	74.07	1,04.42	10,463
1964-65	22,80.96	21,17.09	1,63.87	1,33.01	11,039
1965-66	23,32.70	23,31.03	1.67	32.33	11,862
1966-67	27,00.53	29,78.83	— 2,78.30	— 2,83.50	12,349
1967-68	34,73.65	33,41.09	1,32.56	— 26.20	12,819
1968-69	40,12.38	36,55.31	3,5707	1,56.74	13,178

*Figures exclude the daily-rated and part time.

TABLE XXVII

Traffic and Operating Statistics of Indian Airlines

Year	*Revenue Passengers*	*Mails Carried (Tonnes)*	*Revenue Cargo (Tonnes)*	*Unduplicated Route kms. (Year end)*
1954-55	477,583	4,732	51,064	..
1955-56	500,363	5,074	54,722	22,872
1956-57	571,106	5,306	50,999	22,867
1957-58	599,573	5,249	44,917	23,948
1958-59	653,494	5,554	50,778	26,689
1959-60	703,013	5,950	46,781	29,566
1960-61	787,187	6,107	43,157	28,083
1961-62	880,882	6,708	36,688	30,098
1962-63	906,546	7,106	36,888	30,428
1963-64	1,047,592	8,169	30,715	30,451
7964-65	1,235,310	8,869	24,532	14,219
1965-66	1,205,110	9,526	15,071	30,381
1966-67	1,419,503	9,100	19,454	31,557
1967-68	1,657,671	9,931	21,289	32,617
1968-69	1,959,417	10,206	23,102	33,631

Year	*Revenue Passenger (km.) (Million)*	*Revenue Tonne km. performed (Million)*	*Available Tonne km. (Million)*
1954-55	..	..	..
1955-56	338	60	84
1956-57	386	62	90
1957-58	434	65	93
1958-59	499	74	105
1959-60	551	78	111
1960-61	614	83	113
1961-62	676	87	121
1962-63	692	98	136
1963-64	809	94	135
1964-65	958	109	157
1965-66	986	108	155
1966-67	1,101	119	165
1967-68	1,263	136	206
1968-69	1,445	153	208

TABLE XXVIII

Financial Statistics of Air India International

(In lakhs of Rs.)

Year	Capital	Reserve and Surplus	Total Capital Employed	Gross Block Fixed Assets	Net Block
1954-55	9,66.82	41.28	10,08.10	7,20.92	6,64.19
1955-56	9,93.93	42.57	10,36.50	7,60.43	.
1956-57	12,68.93	80.57	13,49 50	11,35.90	.
1957-58	13,23.51	2,39.22	15,62.73	10,54.00	7,18.50
1958-59	13,66.79	2,58.63	16,15.42	14,21.30	9,71.70
1959-60	16,54.78	2,73.79	19,28.58	23,42.15	18,01.57
1960-61	18,25.79	3,12.62	21,38.41	25,01.54	17,50.04
1961-62	25,20.46	2,72.77	27,93.23	25,75.14	19,75.44
1962-63	26,81.63	4,71.85	31,53.48	25,12.64	19,75.44
1963-64	26,81.63	7,16.13	33,97.77	25,61.63	18,01.43
1964-65	26,81.63	9,35.24	36,16.87	34,29.07	24,11.77
1965-66	26,81.63	10,35.47	37,17.11	32,89.20	20,96.00

Year	Operating Revenue	Operating Expenses	Operating Profit	Net Surplus
1954-55	..	..	..	..
1955-56	6,76.58	6,69.99	6.54	3.78
1956-57	9,64.88	8,76.98	87.90	34.42
1957-58	10,82.49	10,10.82	71.67	1,26.10
1958-59	11,55.77	11,39.92	15.85	18.28
1959-60	12,58.48	12,40.22	18.26	26.98
1960-61	19,17.41	18,00.00	1,17.41	67.97
1961-62	21,56.99	20.80 00	76.99	38.86
1962-63	24,52.69	21,07.25	3,45.44	2,34.78
1963-64	26,81.97	22,96.72	3,84.25	3,04.18
1964-65	30,03.08	26,41.05	3,62.03	3,04.15
1965-66	29,77.24	28,60.99	1,16.65	1,63.56

TABLE XXIX

Traffic and Operating Statistics of Air India

Year	Revenue Passengers	Mails Carried (tonnes)	Revenue Cargo (tonnes)	Unduplicated route km.
1954-55	40,287	303	892	23.330
1955-56	56,445	442	1,038	27,972
1956-57	79,825	614	1,477	33,015
1957-58	88,312	669	1,498	33,345
1958-59	83,868	814	1,884	38,757
1959-60	89,385	875	2,801	38,424
1960-61	123,270	842	3,627	48,187
1961-62	156,535	1,045	5,431	45,473
1962-63	165,736	1,274	5,118	51,192
1963-64	190,969	1,143	6,574	47,713
1964-65	237,996	1,099	7,670	53,729
1965-66	218,458	1,152	7,956	52,369
1966-67	254,736	1,411	9,657	51,263
1967-68	285,459	1,516	10,494	57,603
1968-69	331,051	..	..	..

Year	Revenue Passenger km. (Million)	Revenue tonne km. (Million)	Available tonne km. (Million)	Average No. of staff
1954-55	180	22	31	2,102
1955-56	248	31	56	3,121
1956-57	349	44	69	3,661
1957-58	386	47	80	4,070
1958-59	391	60	88	4,442
1959-60	400	54	93	4,596
1960-61	583	76	161	5,259
1961-62	692	95	217	5,703
1962-63	822	112	252	5,873
1963-64	946	132	292	6,090
1964-65	1,140	157	329	6,543
1965-66	1,057	149	324	7,110
1966-67	1,192	173	353	7,560
1967-68	1,404	199	434	8,265
1968-69	..	..	..	8,821

TABLE XXX

Composition of Aircraft, Air India

Year	*Dakota freighter*	*Constellation 749s*	*Super Constelliation, 1049s*	*Boeing*	*Total*
1954-55	1	4	3	—	8
1955-56	1	3	5	—	9
1956-57	1	3	8	—	12
1957-58	1	—	8	—	9
1958-59	1	—	10	—	11
1959-60	1	—	9	—	10
1960-61	1	—	9	3	13
1961-62	1	—	5	5	11
1962-63	—	—	—	6	6
1963-64	—	—	—	6	6
1964-65	—	—	—	8	8
1965-66	—	—	—	—	9
1966-67	—	—	—	—	9
1967-68	—	—	—	—	9
1968-69	—	—	—	—	10

VIII. Postal Services and Teleocmmuaications

Postal Services: The history of postal communications in India is, as in most other countries, a process of gradual evolution from the rudimentary system of couriers employed by kings and emperors to keep in touch with their far-flung territories into the present immense network and organization. The earliest evidence of a systematic postal service relates to the time of Chandragupta Maurya (*C.* 321-297 B.C.), when a system of communications was established between Patliputra, *capital*, and the outlying provinces of the vast empire for despatch of information and confidential reports to the emperor. Pigeons were also used as message carriers. Bankers had their own system for sending *hundis* (bills of exchange) between important centres, which probably was the fore-runner of the *Mahajan Dawk* of the 17th and 18th centuries.

Coming down to the middle of the 14th century, Ibn Batuta found an organized system of couriers established throughout the country, consisting partly of those on horse and partly of those on foot. The former were stationed at a distance of four miles (6.43 km.) from each other and the latter at every mile (1.6 km.). The couriers sat inside sentry boxes at every stage of three miles (4.82 km.). Every courier carried a whip, about two cubits long with small bells suspended at the head. With the mails in one hand and the whip shaking continuously on the other, the ring of the bells would announce the arrival and warn the next courier resting in the sentry box. The arrangement provided an efficient relay system which ensured the speedy despatch of mails. Two centuries later, Sher Shah Suri, during his short reign, 1540-45. improved the system by placing two horse couriers on the road every two miles (3.2 km.) to facilitate the rapid conveyance of Government despatches and for promoting trade and

correspondence. An idea of the extent of the service is afforded by the 2,000-mile (3,219 km.) highway he had constructed from Sonarang in Bengal to the banks of the Indus in the Sind. Akbar is said to have placed on the principal roads two swift horses and some *mewias* (runners) at a distance of every *kos* (16 km.) for the carriage of Government letters and some private correspondence. The couriers covered about 161 km. in a day and night, and a letter from Agra to reach Ahmadabad took five days. Chikka Devaraja Urs of Karnataka, who came to the throne in 1672, introduced a more efficient system, providing a regular post throughout his dominions enabling intelligence to be obtained as well as mails to be carried. This later developed into the Mysore *Anche*, which was found to be "the cheapest postal system in the British Empire — probably in the whole world."

Postal Services under the East India Company and in the later British Period: During the regime of the East India Company, the prevailing dak system was used for almost a century, with its own paid postal runners. It was only towards the end of the 18th century that the East India Company established its own system which connected the principal towns. The zamindars and landholders along the various routes were required to supply runners against a reduction in rents. Some services were operated under the Postmaster-General since 1774 between Madras and Bombay, Machilipatnam and Madras, Bombay and Calcutta.

It was in 1837 under the provisions of Act XVII of that year that a public post was established and the Government reserved to itself the exclusive right to convey letters on payment in the territories of the East India Company. The Postmasters of the Presidency towns supervised the working of a certain number of provincial post-offices and provided for the conveyance of communications and mails over a few main lines of communications, while Collectors had charge of District Post-Offices and local mail lines. The charges for the conveyance of letters levied in cash and paid in advance varied according to weight and distance. The charge for sending a letter from Calcutta to Bombay was Re. 1 and that from Calcutta to Agra 12 annas per tola (11.66 g.)

On the recommendations of a commission appointed in 1850 to report on the working of the Post-Office, Act XVIII of 1837 was repealed and Act XVII of 1854 was enacted. This Act marks the commencement of the organization of the Indian Post-Office as it had come to function. Under its provisions, the whole department was placed under the control of a Director-General. Postage stamps were now first introduced and rates were fixed for the conveyance of letters irrespective of distance. Act XIV of 1856, replacing the earlier one, was again superseded by Act VI of 1898. This Act conferred extended protection and powers and pro-

vided increased facilities for postal insurance, value payable post and the money order system.

From 1854 to 1869, the lowest rate of inland letter postage was ½ anna for ¼ tola; the next charge was 1 anna for ½ tola; and for weights above ½ tola the scale progressed by 2 annas per tola, and thereafter by ½ anna per tola. In 1869, the weight allowed for each rate of postage was doubled, the initial charge becoming half anna for ½ tola. This rate continued in force until April 1904, when the weight allowed for ½ anna was raised to ¾ tola. The charge for heavier letter was 1 anna for 1½ tolas.

The minimum postage on newspapers was originally 1 anna for 6 tolas of weight; but the rates were from time to time reduced. In October 1898, ¼ anna was made the inland rate for a newspaper not exceeding 4 tolas in weight, and ½ anna the rate for a registered newspaper, exceeding four but not exceeding 20 tolas. While an additional ½ anna was charged on every additional 20 tolas or part of that weight, the weight allowed for ⅛ anna was raised to 6 tolas in January 1904. The postage on packets other than newspapers was 1 anna for 10 tolas until 1878, when it was lowered to ½ anna.

The Post-Office first carried parcels at rates varying with weight and distance. In 1870, a uniform rate of 3 annas for 10 tolas was adopted. In 1873, the minimum charge was fixed at 4 annas for 20 tolas, but four years later it was altered to 8 annas for 40 tolas. The rates of inland parcel postage which came into force in July 1901 were: (1) in the case of parcels not exceeding 440 tolas in weight, 2 annas for the first 20 tolas, 4 annas for any weight exceeding 20 but not exceeding 40 tolas, and 2 annas for every additional 40 tolas; and (2) in the case of parcels exceeding 440 tolas in weight, Rs. 3 for a parcel not exceeding 480 tolas in weight and 4 annas for every additional 40 tolas. As the limit of weight, which was 2,000 tolas, was found to be interfering with the railway parcels traffic, it was reduced to 800 tolas in 1907.

The Postal Act 1854, superseding the previous practice of giving receipts for all letters at the time of posting, added registration of postal articles as a new facility for the public, the fee being 2 annas for all classes of articles.

The insurance of postal articles was introduced in 1878, mainly in order to separate valuable articles from the rest of the mail. There was at first no restriction on the amount for which the article might be insured; but in 1890 a limit of Rs. 1,000 was fixed which was raised in 1898 to Rs. 2,000. The limit has since been raised several times. The insurance fee was reduced in 1905 from ¼ to ⅛ per cent on the value, subject to the minimum of one anna.

The value payable, or, cash on delivery system, was introduced into

India in December 1877 and, under this system, the Post-Office undertakes to collect from the addressee the price specified for payment on certain classes of articles sent for sale and transmit the money to the sender. It was extended in 1891 to the postal exchange between India and Ceylon/Sri Lanka.

In 1875, the Universal Postal Union was established. In the following year, India became a member and party to the Convention which regulated the carriage of letters, postcards and packets between all countries of the Union. In 1892, India applied the standard Union rates to correspondence for all parts of the world, whether within or outside the Postal Union; and in 1898 she joined in the scheme for the adoption of a uniform rate of postage at the rate of a penny per half ounce for letters throughout the British Empire.

In 1873, arrangements were made for the carriage of parcels to and from England and for their collection and distribution by the Peninsular and Oriental Navigation Company. This was soon followed by the introduction of exchanges of postal parcels with certain other European countries and with several British colonies. In 1885, the exchange of parcels with the United Kingdom was transferred to the agency of the British Post-Office and in 1895, India joined the International Parcel Post Union which enabled parcels to be exchanged by post between India and almost every other country in the world.

Prior to 1880, sums not exceeding Rs. 150 could be remitted by money order from one district to another through the agency of the Government Treasuries. A commission of about 1 per cent was charged, the remitter sending the order obtained from the remitting Treasury to the payee who was required to present it at the Treasury of payment. The cost of transmitting the order was a charge over and above the commission and there was the risk of the order being lost or stolen in the post unless forwarded under the security of registration. With less than 300 Treasuries, the system was not popular and could not compete with the remittance of currency notes by post. The service could be improved under the Post-Office which had 5.500 offices. From January 1, 1880, it was decided that the money order business should be taken over by the Post-Office. The commission remained the same but the procedure was greatly simplified. The remitter had only to fill in an application, the Post-Office undertaking to transmit the money to the payee and to obtain his acknowledgement and deliver it to the remitter. The success of the Post-Office handling this was shown by the fact that the transactions more than quadrupled within three months.

Among the several improvements effected later were: the addition to the money order form of a "coupon" on which the remitter could write a communication to the payee; the payment since 1884 of money orders by postman at the residence of the payees; the introduction, also in 1884,

of the telegraphic money order system; and the use of finger impressions for the identification of illiterate payees.

The rate of the commission for ordinary money orders were: 1 anna per Rs. 5, or fraction thereof upto Rs. 15, 4 annas on sums between Rs. 15 and Rs. 25; for telegraphic money orders the scale of charges began with 2 annas for any sum not exceeding Rs. 10, and progressed in the same way as money order rates upto Rs. 150. For any sum exceeding Rs. 150 upto Rs. 600, the charge was Rs. 1½ for a complete sum of Rs. 150 plus 2 annas per each additional sum of Rs. 10. For the cost of the telegram in the case of urgent orders, the further fee was a rupee and in the case of deferred orders 8 annas.

On the money order system proper were grafted measures for the remittances of rent to landowners and of Government dues such as land revenue, cesses and income-tax. These facilities had a special value in protecting the people from illegal exactions. The landowner was saved from improper demands made by subordinate revenue officials and the tenant was protected against the landlord or his agents.

Foreign money orders were drawn upon or received from the United Kingdom and also most British colonies and foreign countries in sterling. There were also a few foreign countries and British possessions to and from which money orders were advised in Indian currency.

The sale of British postal orders for small sums, payable in the United Kingdom and at certain British post-offices in foreign countries, was introduced in India in 1884. The number sold in 1890-91 was 39,683 of the total value of £27,761. With the introduction of more denominations, the number issued showed a marked increase to 453,943 in 1913-14. The number, however, declined in the following years, touching 121,501 by 1921-22. During the inter-war period, the sales improved, but the setback during World War II and the later years led to its final discontinuance by April 1, 1951.

The Post-Office provided for the use of the public postage stamps of various denominations (14 in 1904), embossed envelopes, postcards and newspaper wrappers. Stamps required for official purposes were overprinted "On H.M.S." (On His Majesty's Service). The colour and design of the postage stamps underwent various changes from time to time, the most important being in 1900 when India adopted the colours green, red and blue recommended by the Universal Postal Union for the stamps representing the three standard Union rates of 5 centimes, 10 centimes and 25 centimes, the Indian equivalent of which being ½ anna, 1 anna and 2½ annas.

The one-quarter anna inland postcard in 1879, sold for its face value, gave a lower rate of postage than had been available. In April 1880, service postcards for the use of Government officials were also provided. Reply postcards were introduced in 1884. The introduction of

the postcard, the most popular medium of private correspondence in India, aroused considerable opposition in the public press, mainly on ground that it would interfere with the secrecy of postal communication.

Postal Savings Banks: As the Post Office happened to be the only organization of the Central Government having a large network of establishments covering the entire country, it took over the responsibility for a number of services of a variegated character which had nothing to do with the primary function of carrying mails. In addition to those already referred to, the post-offices sold stock notes from 1882 onwards and, as from 1886, the purchase and sale of Government Promissory Notes were also undertaken. Perhaps the most important was the service performed by the Post-Office by the institution of savings banks.

Post-Office savings banks came into existence in April 1882 and by April 1883 they were in operation throughout India. The post-office savings banks and the district savings banks, instituted in 1870 in connection with certain treasuries, continued side by side till 1886, when the latter were abolished. Only the Government savings banks in the cities of Calcutta, Bombay and Madras remained in the hands of the Presidency Banks until 1896.

The popularity of the post-office savings banks was evidenced soon after they were opened in 1882-83. The number of depositors in that year was 38,121; the amount at their credit nearly Rs. 28 lakhs, and the interest which they received was Rs. 49,020. By the turn of the century, the number rose to 736,000 and the amount to Rs. 965 lakhs. The minimum deposit was four annas and the maximum total credit permitted was Rs. 2,000. The interest was formerly allowed at the rate of ¼ anna a month on every complete sum of Rs. 6, equivalent to 3⅛ per cent per annum, which was later reduced to 3 per cent on deposits held at call and raised to 3¼ per cent on deposits requiring six months' notice of withdrawal. The Post-Office received no remuneration for its savings bank, all incidental expenses in connection therewith being borne by it. The Post-Office also afforded facilities to invest in Government securities any sum in whole rupees from Rs. 10 to Rs. 1,000 in any one year, provided the depositor's total investment including his current deposit account did not exceed Rs. 5,000. At his option, the securities purchased may be kept by himself or on his behalf by the Comptroller.

The rapid progress at first of the post-office savings banks was slowed down by the lowering of interest and the reduction in the permissible annual and total amounts to be deposited. The total balances varied regularly with the economic conditions of the country, a famine year showing a considerable decrease and a better agricultural season an improvement. Similarly, war and war scares also made the deposits

sensitive. During both World Wars, there were unprecedented withdrawals. In 1914, the balances dropped from Rs. 23 crores to Rs. 16 crores. In 1940-41, the balances came down from Rs. 81.86 crores (as of 1938-39) to Rs. 59 crores. There were also the decreases, as were to be expected, from the separation of Burma in 1937 and the partition of India in 1947. But the general trend, allowing for these factors, was steadily upward. Since 1947, the deposits and the annual balances have responded to the better facilities and the economic progress of the country. The balance at the end of 1961-62 amounted to Rs. 466.54 crores as compared with Rs. 142.35 crores and Rs. 167.17 crores on March 31, 1947 and 1950, respectively. The average balance per depositor has risen from Rs. 122.8 in 1900 to Rs. 358.9 in 1947 and Rs. 492 in 1962. These increases are all the more striking as there had been, during the period covered, a considerable expansion in savings bank facilities provided by commercial banks.

Railway Mail Service: With the commencement of the railways, an obligation was imposed on them to carry letters and parcels free of charge and the Provincial Governments were empowered to require the railways to run trains to carry the mails. The mail bags were at first carried as such in a guard van or a separate compartment. Sorting of mails in transit was a later development, first at large centres and subsequently in 1870 with the mail service. In 1877, Government decided that the Post-Office should pay the railways for the cost of conveyance. Postal vans were standardized in 1882. The basic principles applied to the carriage of mails by rail adopted at this time have continued since then without much change.

Progress of Postal Services from 1860 to 1947: The steady expansion of post-offices in the country led to a progressive increase in the volume of work handled by them. In forty years from 1860-61 to 1900-1901, the number of post-offices rose from 889 to 12,970 and the letter boxes from 190 to 25,507. The number of postal articles handled rose from 48 millions to 582 millions over the same period. During the next forty five years, 1901-02 to 1945-46, which included two World Wars and separation of Burma, the number of post-offices doubled and the number of articles handled increased to 370 per cent. The same picture is presented by the money order business and the post-office savings banks.

The length of postal lines steadily rose from 70,148 km. in 1860-61 to 191,910 km. by 1900-1901. By 1950-51, the figure had gone up to 260,989. In assessing the progress, it is necessary to make allowance for the separation of Burma in 1937 and the partition in 1947.

Mail Runners: In some of the branch offices, the mail runners, a unique figure in the dispersed areas, with their belts and badges, had spears

with clusters of small bells attached, which, beside being useful in scaring away wild animals by their jingle, helped the runners to travel at a measured pace and notify the approach of the mails. Ordinarily, the mail bags are tied together and suspended to one end of the spear and thrown over the shoulder. In many parts of the country—mail runners have been exposed to considerable danger from diffrent causes, such as floods, storms, wild beasts, and on occasions to highway robbers. Although the mails usually contain cash and other valuables, it seldom happens that a runner attempts to tamper with them. On the other hand, there are many cases on record in which the runners have defended the mails in their charge at the risk or cost of their own lives.

Mails to and from Foreign Countries: Postal traffic with foreign countries forms an important part of the activities of the Post-Office. The earliest mail communication between Europe and India was by sailing vessels, starting at irregular intervals from England and proceeding round the Cape of Good Hope. In 1815, the charge for a single "letter" was 3s. 6d. payable on delivery in India, of which 2d. was paid to the ship with an additional 2d. to the commander. But soldiers in the service of the Company or the Crown were privileged to send and receive letters at the rate of 1s. In 1825, the voyage was for the first time performed by steam. It was not until 1835 that the Indian mails were conveyed over the isthmus of Suez and through the Red Sea. In 1840, the Peninsular and Oriental Navigation Company was selected to convey mails to Alexandria, and, in 1842, the company established a line of steamers between Suez, Ceylon, Madras and Calcutta for which in 1844 it received a contract for five years with a subsidy of £250,000 for the combined India and China services. This contract was subsequently extended from time to time. It provided in 1853 for a fortnightly service between the United Kingdom and India (Calcutta), and in 1867 for a weekly mail service to and from India (Bombay) with a transit of about twenty-six days. The annual subsidy increased to £400,000 to be raised, if necessary, upto £500,000 to give the company a net profit equal to 6 per cent on its capital. In 1880, the weekly service and transit of mails were brought down to 17½ days. In 1888, the conveyance of the mails through the Suez canal, instead of across Egypt, reduced the time by one day, and later 14½ days for th entire transit. The subsidy also came down gradually to £330,000 under the combined Eastern and Australian mail service 1898-1905.

From 1854 to 1869, the trans-European route for mail service between the U.K. and Inda was *via* Marseilles, but towards the end of the latter year the service by that route was supplemented by a service *via* Brindisi. The sorting of mails on board and mail steamers in the Indian Ocean

was introduced in 1868 and the mails landed at Bombay ready sorted for chief towns.

Field Post-Officer: The Post-Office was called upon from time to time to serve the field forces on military expeditions. Indian postal staff went on active service on several occasions, such as with the Persian expedition in 1856 and Expeditionary Force in Abyssinia in 1867, in the Afghan Wars of 1878-80, Egypt in 1882-83 and Sudan in 1885, with the Chinese field forces in 1901, in Somaliland in 1903, in Mesopotamia, East Africa and Persia during the World War I and World War II.

Service Stamps: Upto 1865-66, all official articles were conveyed free and the Government Departments concerned were pro-forma debited with the postage due from them. The result was in almost unrestricted licence to frank letters on public service. In 1867, service stamps were introduced and pre-payment of official correspondence was insisted on. At first restricted to official articles passing out of Presidency towns or outside the limits of the district in which they were posted, it was gradually extended, until in 1873 all franking privileges were abolished. This tended to keep within reasonable limits the amount of official correspondence conveyed by the Post-Office.

The rates of postage applicable of official correspondence were originally the same as for ordinary correspondence. But, taking into account that the official covers were larger and less troublesome or expensive to deal with, the rates were reduced in 1873. Further reductions were made in later years by which the permissible weight was raised to 10 tolas against 1½ tolas for private letters. The rates applied to parcels and packets were the same.

Postal Insurance: The Indian Post-Office has an insurance branch from which any Government servant subject to civil rules can obtain a life insurance or endownment policy upto Rs. 4,000 or an annuity upto Rs. 50 a month. Originally started in 1883 for the postal servants, it was gradually extended to civil employees of Government. In 1949, however, the facility was extended to members of the Defence Services as well as to employees of certain semi-Government institutions. The number of policies issued has in recent times declined considerably. Between 1955-56 and 1962-63, the civil portion of the life insurance policies issued dropped from 17,074 to 4,100 and the military portion from 1,026 to 320. In 1950, the grant of loans on the security of the policies was also allowed.

Air Mail Services: India is perhaps the first country in the world to have flown mails, although in an experimental way, when on February, 21, 1911, a de Havilland aircrfat carried mails comprising about 6,500

letters during a demonstration flight from Allahabad to Naini across the river Yumana. Regular use of air services for carrying mails, however, had to wait till 1920 when the air service between Bombay and Karachi was started. On April 7, 1929, the U.K. — India air mail service was inaugurated. Six months later an Indian air company carried a feeder air mail service between Delhi and Karachi Th eastern service of the K.L.M. and of Air France also traversed India about this time. In 1931, the Indian Post-Office introduced the air mail postcard. Under the Empire Mail Scheme in 1938, the mail service operated four times a week between London and Malaya, touching Karachi and Calcutta.

There has been steady improvement in the air mail service since independence, and this has kept pace with the extension of air services in the country.

The inauguration of the Night Air Mail Scheme in Nagpur in January 1949, was a landmark in the history of airborne mails in the country. This service, working in conjunction with the day air services at the four-terminal stations at Madras, Bombay, Calcutta and Delhi, provided a channel for continuous aerial transmission of mails between the four corners of India, greatly cutting down the mail transit time. This was followed by the "All Up" Scheme on April 1, 1949, under which all unsurcharged first class mail was given air lift, wherever such air lift resulted in speedier delivery.

In May 1951, money orders were also brought under the "All-Up" Scheme and, in September of the same year, insured letters were also included. In the following month, the inland letter card, designed on the pattern of foreign air letters, was introduced and priced 1½ annas.

The volume of the traffic carried by air mail, foreign and inland, is indicated in the following Table:

TABLE XXXI

Volume of Foreign and Inland Air Mails
1956-57 to 1968-69 (Select Years)

(Figures in thousands)

	Outwards Foreign (*kgs.*)	*Inwards*	*Inland* (*lbs.*)
1956-57	334	597	14,140
1958-59	412	696	9,980
1959-60	444 (403)	769	10,598
1964-65	647	1,403	6,120 (kg.)
1967-68	783	1,918	7,093 (kg.)
1968-69	742	1,749	6,669 (kg.)

Agency Functions: Among the several agency functions undertaken by the Post-Office, the most important is the sale of savings certificates. The Five-Year Post-Office Certificates date back to 1917. Besides

these, in order to encourage small savings, the Post-Office in the past had sold the war loans and in 1940, the Defence Savings Certificates, later replaced by the National Savings Certificates. The business reply cards were introduced in 1932, and in 1934, on behalf of the Finance Department, the Post-Office undertook the sale of revenue stamps for use in payment of duty under the Indian Stamps Act. Ten years later, it took over the sale of the tobacco excise revenue stamps for the collection of fees on tobacco excise licences. A year later, it handled the sale of the Central Excise revenue stamps.

The sale of quinine to the public has been one of the oldest agency functions of the post-office. During 1962-63, the Post-Office sold through the agency of its offices in Central, Madras and West Bengal Circles 317 lbs. and 144,000 tablets of quinine and its substitutes. The other States had their own arrangements.

Since 1947, the department continued to enlarge the sphere of its activities. In 1950, on behalf of the Ministry of Health, it put on sale the T.B. Seal on its counters. At the instance of the All India Khadi and Village Industries Board, arrangements were made to sell *Khadi Hundies* during September 1954 to March 31, 1955.

Increase in Number of Post-Offices since 1951: There has been an acceleration in the development and expanison of the postal services since independence. As a result of the Five-Year Plans, the progress has been systematic and continuous. The objective in the First Plan, 1951-56, was to serve, besides all administrative headquarters such as *tehsils*, *talukas* and *thanas*, every group of villages located within a distance of 3.22 km. and having a population of 2,000, provided the annual loss did not exceed Rs. 750 and there was no Post-Office within a distance of three miles.

The conditions for opening Post-Offices were relaxed during the Second Plan, 1956-61, and the programme aimed at providing Post-Offices to each group of villages within a radius of two miles and having a population of 2,000. In addition to these, Post-Offices were also sought to be provided at every headquarters of National Extension and Community Project Blocks, subject to the conditions relating to the permissible limits of annual loss and distance. The conditions for opening Post-Offices were further liberalized in 1950 by including also places where schools were run by district boards or schools run were approved by the State Governments.

As a result of these steps, the number of Post-Offices in the country increased from 36,000 to 55,000 in 1955-56, and to 77,000 in 1960-61. The increase during the period of the Third Plan was 20,942. The total number by the end of 1968-69 was 102,477.

The needs of rural areas received special attention and, as a result of this, the number of villages obtaining daily service increased from 186,661 in 1956-57 to 320,311 on December 31, 1969. There are no more "No Dak" villages

There were on the same date 48,991 villages receiving mails at an interval of one week and 7,702 villages at an interval of more than a week. There have been a steady improvement during the plan periods.

Mobile Post-Offices: In 1948, a novel experiment of a post-office on wheels on a fixed schedule was started covering about 150 villages in the Nagpur-Wardha-Yeotmal-Amraoti region. This had to be given up as it proved highly uneconomic. In the following year, however, a night mobile Post-Office was started at Nagpur as an adjunct of the Night Air Mail services. It was soon extended to Madras, Delhi, Bombay and Calcutta. The mobile Post-Office goes to important centres in the city at specified hours after dusk and after the normal working hours of post-offices. It works during all the days of the year, but does not book money orders or do savings bank work. A floating mobile Post-Office was opened at Srinagar in 1953, working in a *shikara* on the Dal Lake and the Jhelum river to meet the needs of tourists staying in house-boats. Towards the end of 1969, 15 mobile Post-Offices were functioning in all "A" Class and "B" Class cities.

Growth of Postal Traffic and Revenues: Since independence, there has been a growing demand for communication facilities represented by the postal, telegraph and telephone services and overseas communications. The progress during the period of the three Five-Year Plans and the three Annual Plans may be judged from the comparative figures relating to 1948-49 and 1968-69 set out below:

	Figures in million	
	1948-49	1968-69
(1) Postal articles (excluding money orders)	2,264	6,056
(2) Registered articles	76	178
(3) Money orders	45	100
(4) Savings Bank (transactions)	9	69

A perspective view of the development of postal facilities related to population is afforded by the figures given in the Table XXXII.

With 100.000 Post-Offices, there is a Post-Office for every 6.4 villages, 5,000 population and 37 sq. kilometres in the country. This compares favourably with the statistics of certain foreign countries as shown in Table XXXIII.

TABLE XXXII

Average Revenue and Traffic per head of Population: 1921—1968-69

Year	*Population (million)*	*Revenue Rs. Crores*	*No. of articles (millions)*	*Average revenue per head of population (Rs.)*	*Average No. of articles per head of population*
1921	310	5.82	1,410	0.19	4.34
1931	337	7.37	1,175	0.22	3.49
1941	392	9.85	1,272	0.26	3.33
1951	356	21.04	2,270	0.59	6.37
1961	439	40.78	4,029	0.93	9.17
1968-69	531	93.98	6,056	1.77	11.41

TABLE XXXIII

Average Population and Area per Post-Office in India and Certain Foreign Countries

Country	*No. of Post-Offices*	*Population per Post-Office*	*Area per Post-Office* (Sq. km.)
Australia	8,179	1,204	942
Canada	11,205	1,542	862
Great Britain	24,937	2,065	9.87
Japan	15,971	5,760	23.10
U.S.A.	36,308	4,802	264
India	88,058	4,988	37.30

The total capital outlay on the Post-Office to the end of 1968-69 is Rs. 15.22 crores, of which Rs. 1.05 crores are from ordinary revenue. The financial results of working the Post-Office disclose fluctuations, surpluses in some years and deficits in others. Because of its being administered along with the Telegraph Department together with the telephones and the radio, the total results are better indicatives of the working of the entire organization. The working of the Post-Office has on the whole resulted in a surplus. Taking the period 1956-57 to 1968-69, the surpluses and deficits have been as follows:

TABLE XXXIV

Surplus or Deficit in Working the Post-Office during 1956-57 and 1968-69

(In crores of Rs.)

Year	Surplus + Deficit —
1956-57	+ 1.33
1958-59	— 1.99
1959-60	+ 1.30
1960-61	+ 0.80
1961-62	— 0.87
1962-63	+ 2.24
1963-64	+ 0.79
1964-65	+ 3.44
1965-66	— 3.28
1966-67	— 3.28
1967-68	— 8.34
1968-69	— 14.12
	— 6.16

The financial result, of working the Post-Office during 1968-69 are as follows:

	(In Crores)
Total receipts	Rs. 93.98
Net working expenditure	Rs. 99.16
Dividend	Rs. 0.98
Deficit	Rs. 6.16

There are three Reserve Funds. The Renewal Reserve Fund for the Post and Telegraphs Department has shown a steady increase under the closing balance. From Rs. 5.89 crores in 1955-56, it has gone upto Rs 101.55 crores in 1968-69, representing in this year 28.8 per cent of the value of the total fixed wasting assets.

The closing balance in the Capital Reserve (Post and Telegraphs) was Rs. 2.29 crores on March 31, 1969. The Revenue Reserve Fund (Postal) on this date was overdrawn by Rs. 23.82 crores.

Telegraphs: The earliest experimental telegraphic lines in India were those for which, in 1951, Dr. W. B. O'Shaughnessy, Assistant Surgeon and Professor of Chemistry in the Medical College at Calcutta, obtained sanction to construct along the Hooghly from Calcutta to Diamond Harbour, with a branch from Bishtopore to Mayapur and an extension from Kukrahati to Kedgeree, making with some short additional sections, a total of 132 km. In the same year. offices were opened at Calcutta, Mayapur, Bishtopore and Diamond Harbour for business connected principally with shipping. To these were added in February 1852, Kukrahati and Kedgeree. The receiving instrument was a small galvanoscope designed by Dr. O'Shaughnessy and made in India, and this pattern continued in use until 1857 when it was replaced by the Morse instrument.

These experimental lines proved successful and Lord Dalhousie obtained sanction from the Court of Directors for the construction of lines from Calcutta to Agra, Agra to Bombay. Agra to Peshawar. and Bombay to Madras, extending in all over 4,848 km. and including 41 offices. These were opened for paid message traffic in February 1855. By 1857, the lines had been further extended, bringing Mysore, Ootacamund and Calicut into the system. which now amounted to 7,331 km. of wire and 62 offices opened to public.

During the revolt of 1857, the Telegraph office was able to render notable service, indicating thereby the political value of the telegraph. Nearly 3,219 km. of line were constructed during the following year in addition to the reconstruction of the lines destroyed during the convulsion. Since then the Department has steadily expanded year by year. Steady progress was also maintained in establishing telegraphic connections with countries outside India. All telegrams on the service

of the State were paid for, except those relating to the service of the Postal and Telegraph Departments.

Tariff — Local and Foreign: The Tariff was first fixed at Re 1/- for each 16 words, including the address for transmission over 644 km. of telegraph line and at double this charge on telegrams presented between 6 P.M. and 6 A.M. After several experimental modifications, a revised tariff was introduced in January 1882, under which the charge was made uniform for all hours of the day and night and for any distance, the address being signalled free in all cases. In 1886, telegrams were classified into 'Urgent', 'Ordinary' and 'Deferred', the charges for these being Re. 1 for 8 words and 2 annas for each additional word for 'Ordinary', double these rates for 'Urgent' and half the ordinary rates for the 'Deferred'. There were several changes in the tariff from time to time.

For messages between India and the U.K., the original tariff was £5 for 20 words. This was reduced to £2-17-6 in 1868 and raised to £4-10-0 in 1871. In 1875, this was replaced by a word rate of 5½ Francs *via* Suez or Tehran and 5 Francs *via* Turkey. Since 1885 the rates were gradually reduced to 2s. The tariff for foreign countries were susceptible of variation, being made up of the shares of different administrations concerned and in accordance with the alterations in rate made by them and the routes employed.

Press telegrams were given the privilege of despatch at a far lower rate than was allowed for ordinary private messages, namely, about one-sixth of the usual rate, for inland press messages; about one-third, for foreign press messages.

During 1895-96, the phonogram was introduced at Bombay and Calcutta, by which any telephone subscriber could for a nominal charge read out his telegram by phone to a departmental telegraph office where it was booked and transmitted to its destination in the usual way by the telegraphic service.

Progress of Telegraph Services: The growth of the telegraph transactions at the turn of the century may be indicated by a few figures. In 1860-61, about 17,710 km. of telegraph lines had been opened with 145 offices. In 1900-1901 there were 88,550 km. of telegraph line with 1,939 offices which dealt with more than 6,462,000 messages, about 90 per cent of these being for the public. The net revenue earned by the Department showed a profit in that year of 6.2 per cent on its capital outlay, without taking into account the Home charges, including those of the Indo-European Telegraph Department.

The Indo-European department was in charge of that portion of the system of telegraphs between England and Karachi which was owned by the Government of India. This included: (1) the Persian

Gulf section from Karachi to the head of the Persian Gulf and connecting the Indian Telegraph lines terminatng at Karachi with the Persiad section at Bushire and the Turkish telegraph at Fao.

Efficient and prompt maintenance and repairs could hardly be undertaken without an adequate workshop. A Central Workshop was established in 1885 and this was later supplemented by another at Calcutta. During World War I, these workshops turned out many useful articles. A store depot was opened in Lahore in 1932. There were similar depots at Calcutta and Bombay. The workshops manufactured many important items such as telephone switch-boards.

There was a rapid development of the telegraph service after World War I, as will be seen from the figures shown in the following Table relating to the telegraph offices and licensed offices.

TABLE XXXV
Progress of Telegraph Offices and Traffic
1921-1936 (Select Years)

Year ending March 31	*No. of Telegraph Offices*	*No. of Telegrams (in* '000)	*Telegraphic Revenue in lakhs of Rs.*
1921	3,584	19,893	3,24
1926	3,851	18,778	2,88
1931	10,540	18,124	2,68
1936	10,394	17,152	2,68

A number of additional items of service to the public were introduced by the Department during the inter-war period. Among these may be mentioned the "Greetings Telegram" as from June 2, 1931, the "De Luxe Telegrams" to certain Empire countries in 1938, and the "De Luxe Inland Telegrams" as from June 1, 1938.

The teleprinter system was introduced between Delhi and Agra. In 1932, a four-channel HF telegraph carrier, the first of its kind in India, operated between Bombay and Calcutta. The teleprinter routes installed on November 26, 1936, were expanded to include two systems between New Delhi and Bombay and a system each between Madras and Bombay and Karachi and Bombay.

The telegraph system prior to partition, as on March 31, 1947, stood as follows:

Lines and Cables	
Post lines	188.694 km.
Wire Copper, Iron and Bronze	1,138,148 ,,
Cables, Aerial u/g, submarine	8,461 ,,
Telegrams:	
No. of Press	944,107
No. of Ordinary	242,990
Revenue	Rs. 7,64,65,000

Phonograms:

Booked	945,553
Delivered	358,689
Revenue	Rs. 1,18,200

Development during the Five-Year and Annual Plans: Since independence, the policy of expanding telegraph facilities, particularly in the rural and semi-urban areas, was vigorously pursued by the Department. Until 1951, no scheme for opening a telegraph office could be taken up unless it was profitable. From October 1951 onwards, the policy was gradually liberalized. At first, special consideration was given to places where the loss in working would not exceed Rs. 500, and this was later raised to Rs. 1,000. In September 1953, it was decided to open telegraph offices at all district towns without any limit of loss and, subject to a loss not exceeding Rs. 1,000, at subdivisional and tehsil towns. During the Second Five Year Plan, the programme of extension of telegraph facilities to rural areas with a population of more than 5,000 was taken up.

The number of telegraph offices in the country increased from 3,000 in 1950-51 to 12,612 in 1955-56.

The Indian Language Telegraph Service in *Devnagri* script, called Devnagri Telegraph Service, which started in nine offices on June 1, 1949, covered 2,518 offices on March 11, 1966. The number of telegrams in *Devnagri* script during 1965-66 was 341,766, the total number of telegrams handled during the year being 40 millions.

The programmes of improvement and development aimed at reducing the time interval between the initial booking and the delivery of the telegrams. This has necessitated the installation, on an extensive scale, of modern devices such as teleprinters and tape-relay systems to avoid repeated handling of telegrams and the gradual replacement of morse working. Further improvement, such as additional teleprinter exchanges, telex services and voice frequency telegraph channels, contemplated during the Fourth Plan period.

The financial results of working of the Telegraph Branch during 1968-69 may be seen from the following Table:

TABLE XXXVI

Financial Results of Working of the Telegraphs Branch during 1968-69

	In crores of Rs.
Total revenue	22.52
Total net working expenses*	25.90
Dividend to General Revenues	4.06
Deficit	—7.444
Progressive capital outlay	103.22
Balance in Renewals R. Fund	—16.68

*Includes dividend and contribution to Renewals and Reserve Fund.

Telephones: In 1881 and 1882, the Government of India granted to the Oriental Telephone Company licences to establish telephone exchanges at Bombay, Madras, Calcutta, Karachi and Rangoon. Permission was given to the company to erect private lines each under a separate licence in the localities not covered by the exchange licences.

In 1882, the Bombay Telephone Company, to which the licence was transferred, was established under the Companies Act with a nominal capital of Rs. 9.4 lakhs and 90 subscribers. The Bengal Telephone Company started in the previous year with 102 subscribers. In smaller towns, the Government itself assumed the reponsibility to run its own telephone system. Even in the larger cities like Bombay and Calcutta, where private companies had been given the licences to run the services, the Government had its own telephone system for its offices.

The policy in regard to telephones was laid down in the Simla resolution of October, 25, 1883, which stated that the Government of India had no desire to compete with private enterprise in the matter of telephone exchanges in the country but reserved to itself the right to undertake such business in places where private agencies were not prepared to take it up. Also, so long as the business was conducted satisfactorily and in terms sufficiently advantageous to the public there would be no necessity of taking over.

By 1900, there were 46 departmental exchanges with 401 exchange connections and 535 private lines. The telephone companies at Calcutta, Madras, Bombay, Karachi, Ahmedabad, Rangoon and Moulmein had 2,005 connections and 273 private lines The magneto exchanges eventually gave way to Central battery exchanges and later to the automatic. A number of public call offices were also functioning in places such as Mussoorie, Landour, Dehra Dun and Kulri Bazaar.

On January 1, 1907, irrespective of the number of calls, uniform rates were made for 8 hours', 16 hours' and 24 hours' service at Rs. 120, Rs. 135 and Rs. 150 per annum, respectively, on all connections not exceeding 2 miles in length from the departmental exchange. Internal installation charges were also made to vary respectively for these different hours of working at Rs. 90, Rs. 100 and Rs. 112 per connection not worked by the Telegraph Department.

In 1914. the first automatic telephone exchange was installed at Simla; the second at Poona. Automatic exchanges were later extended to Ootacamund, Gomoh, Allahabad, Delhi and Lahore. The telephone companies in Bombay and Madras also kept pace with developments replacing their system by automatic system.

By 1920-21, there were in the country 255 exchanges with 10,703 connections owned and maintained by the Government of India, of which a few were not operated by the Department. The gross rental from

the Railways and Canals was Rs. 14.84 lakhs. The licensed telephone companies owned 11 exchanges with 20,335 connections and these earned Rs. 34.91 lakhs. The trunk lines extended to 9,034 km.

The inter-war period witnessed a boom followed by a world wide depression. During this period, there were a number of changes in the service and technical sides — in 1923, a 145 km. long distance channel between Lahore and Lyallpur, the use of a single channel carrier between Delhi and Agra in 1930 which brought telephone communication without erection of additional wire, and radio-telephone connection between England and India in 1933 and with Burma in 1936. When the World War II broke out there was a sudden demand for communication facilities from the administrative and defence services. The Telecommunication Development Board was set up in 1942 to co-ordinate the requirements and the plans for expansion.

During 1941-43, the Government of India exercised their option to terminate the licences of the private telephone companies and the Department took over the administration of the Bombay, Calcutta and Madras telephones. After the termination of the war and, when independence came, it became possible for the Department to undertake expansion of its services on a scale adequate to the growing requirements of the country. The Federal Financial Integration of the States into the Union on April 1, 1950, brought with it the lines previously operated by them, consisting of 196 exchanges of varying capacities, designs and installed capacity with 13,362 lines and 11,296 working connections.

Progress under Five Year Plans: Together with the expansion of development of the telephone system of the country came also the modernization of the equipment and their housing in new buildings. With the commencement of the Five-Year Plans, the schemes of the Department were integrated into the overall national plan. During the First Plan, for which Rs. 39.59 crores were provided, considerable progress was made on the schemes of automatization and expansion of the Calcutta exchange which had not responded to these changes during the company management; further progress was made in the development of the Madras and Bombay exchanges. By the end of the First Plan, 109,600 telephones, 347 trunk exchanges and 44,803 carrier telephones were added to the system. By the end of the Second Plan, 183,400 telephones and 564 exchanges were installed. By the end of the Third Plan, 401,000 telephones were added giving a total of 870,000 connections.

During the Third Plan and the Annual Plan period of 1967-68 and 1968-69 the increases recorded against partical items are shown in the following Table:

TABLE XXXVII

Development During the Third Plan and Annual Plans Relating to the Telephones

		Third Plan 1961-62 *to* 1965-66	*Annual Plans* 1967-68	1968-69
(1)	No. of telephone exchanges opened	1,537	266	271
(2)	No. of direct exchange lines installed	359,240	65,374	67,058
(3)	No. of telephones instlled	396,415	83,819	103,630
(4)	Micro-wave route opened (km.)	190	200	100
(5)	Coaxial route opened (km.)	3,150	552	..

The quality of the service to the public has been steadily improved. Among the changes introduced in recent years may be mentioned the progress of long distance dialling. In November 1960, the subscriber could trunk dial on the Kanpur-Lucknow line. The "Own your Own Telephone" system introduced in 1949 enabled the applicant to get a telephone on advance payment of Rs. 2,500 at Bombay and Calcutta and of Rs. 2,000 at certain specified places, being 20 years' advance payment of rent involving no further payment during this period except the maintenance and call charges. "Own your Own Exchange" came next in 1950, whereby the Department undertook to open a small exchange at any station when a loan of Rs. 50,000 at 2¾ per cent interest repayable at the end of 20 years was forthcoming. Under the "Phonecom" service introduced in 1950, telegrams in Indian languages by telephone can be transmitted. The extension of trunk telephone facilities at the district headquarters and exchanges at these places having a population of 20,000 during 1954 brought the facilities of telephonic communications to places which never had them before. There are departmental testing organizations at Alipur, Jabalpur, Bombay, Bangalore and New Delhi.

In recent years, other changes designed to cater to wider public needs have been introduced. The "Shared Phone Service" by which those who have not been able to get the connection may share with an OYT (*own your own telephone*) or a non-OYT subscriber on certain prescribed rentals. Some progress has been achieved in bringing out Telephone Directories in Hindi and other regional languages. Cross-bar exchanges, now manufactured in Indian Telephones Industries, are being commissioned at an increasing number of places. As of 1969-70, about 17 places are under cross-bar installation. Telegraph service in *Devnagri* script has been extended to more and more offices, the total number as on December 31, 1969 being 3,444. Teleprinter Exchanges (Telex), first introduced in the country on a nation-wide basis in June 1963, with the simultaneous commissioning of 200 telex lines at Delhi, Calcutta, Bombay and Madras, have been extended to other places. Telexes have, during 1960-70, increased to 27, with an installed capacity of

6,560 lines. International Telex service, direct and switched, has been extended to a steadily increasing number of foreign countries. From 1,140 calls in 1960-61 the number has gone up to about 155,000 in 1968-69 and from 12,000 minutes to well over a million during this nine-year period. New trunk telephone exchanges are being opened, and point-to-point subscriber trunk dialling introduced on new routes. The aim is to facilitate national subscriber dialling. New micro-wave relay systems are being established. Other facilities, such as, long distance postal call offices, standard application form to expedite processing of applications for connections, the measured rate system for local calls, leasing of wireless links, services on special occasions to coastal station to rescue operations to ships in distress at sea — indicate the extensive range of activities of the Department.

Manufacture of Telephone Equipment: With a view to attaining self-sufficiency in telephone equipment, the Indian Telephone Industries was set up in 1948 as a Government undertaking under a 15-year agreement with the Automatic Telephone and Electric Co. Ltd., Liverpool. At the end of the Second Plan, the production of exchange lines increased from about 50,000 to 120,000, besides transmission equipment worth about Rs. 64 lakhs. At the end of the Third Plan, the production of exchange lines was expected to increase to 100,000 and to 160,000 telephone instruments along with a substantial expansion in the transmission equipment. Actually, by 1967-68, the production of Indian Telephone Industries amounted, under automatic exchange equipment, to 216,000 telephones, 658 multiple racks, 961 miscellaneous racks, 42,286 small exchange lines, 58,600 switches and 23,000 relay sets. Under transmission equipment, the production in 1967-68 made progress and, during the year, several new items were also taken up for production. The sales amounted to Rs. 20 crores. The company made a profit of Rs. 153.29 lakhs after providing for taxes. The undertaking also entered the export market in respect of sale of equipment to a number of countries.

Teleprinter Production: The Hindustan Teleprinter Factory was started in December 1960 with the Government holding all the shares and with Italian collaboration, namely, with Messrs. Olivetti of Italy. Production of teleprinters reached 3,800 by 1967-68, the indigenous content being steadily increased to 84 per cent of the bought out components of major parts. The expansion programme now envisages a production capacity of 8,500 units by 1970-71 as compared with the earlier target of 1,300 teleprinters by the end of 1963-64. The manufacture of *Devnagari* teleprinters has been started and the first batches had been released for use in July 1968.

Overseas Communication Service: Prior to the Government of India taking over, the external communication services were under the India Radio and Cable Communications Company, itself being the successor of the Cable Companies operating in India since 1870. The Overseas Communication Service was constituted as a nationalized undertaking under a Director-General with headquarters at Bombay on January 1, 1947. With a network then consisting of two submarine cable telegraph services, five radio telegraph services, one radio telephone service to U.K. and a restricted radio-telephone service to U.K., India was primarily dependent upon London as the clearing house for most of her overseas telecommunications traffic.

There has been considerable expansion since then. By the end of the Second Plan, India had, through 25 wireless telegraph, 25 radio-telephone and 12 radio-photographic services, established direct radio contacts with 28 countries.

The service, with its four gateway centres at Bombay, New Delhi, Calcutta and Madras, handles the submarine telegraph cable system from Bombay and Madras and the radio-telegraph and radio-telephone systems from all four centres. The submarine telegraph cables are owned and maintained by Messrs Cable and Wireless, London. By switched service, these direct connections with the international trunk routes are available with practically all countries of the world. Radio-telephone is also available *via* London to a number of ships of British, American and other foreign registries It has also provided other services, such as multi-address broadcasts for Indian diplomatic posts abroad, news transmission services from Bombay for press, leased telegraph channels for long-distance radio-typewriter to private customs and the international telex service, enabling the subscribers in Bombay to have immediate teleprinter connection with another in the U.K. or any one of a number of other countries. Radio-photo services are available with 28 countries.

The financial results of working and traffic of the Overseas Communication Service are summerized in the following Table.

TABLE XXXVIII

Financial Results and Traffic of the O.C.S. for Select Years

(In thousands)

Year		*Gross Revenues*	*Net Profit*	*Capital Assets*
		Rs.	Rs.	
1950-51		147,24	46,61	72,75
1956-66		175,58	43,40	148,28
1960-61		214,80	69,32	270,35
1963-64		285,25	127,22	401,61
1964-65		421,30	117,86	421,30
1965-66		362,16	178,65	441,24
1966-67		491,89	261,35	477,31
1967-68		497,07	245,04	500,69
1968-69	est.	537,37	263,69	990,68

Traffic **Radio Photo**

Year	Radio Telegraph		Radio Telephone		Telex Traffic	
	Messages (million)	Words	Minutes (thousands)	Sq. Cms. (thousands)	Calls (thousands)	Minutes
1950-51	2.64	70.08	51.96	27.1	..	..
1955-56	2.97	78.33	138.61	124.83	..	..
1960-61	2.79	77.69	287.86	346.40	1.14	12.8
1963-64	2.83	87.79	254.41	319.05	15.13	103.1
1964-65	2.98	96.51	280.66	712.92	44.80	306.3
1965-66	3.06	119.03	362.82	919.10	75.58	541.0
1966-67	3.16	98.95	423.29	473.35	84.72	589.1
1967-68	3.23	102.97	520.00	1,010.00	114.56	803.7
est. 1968-69	3.39	108.00	..	..	155.00	1,080.0

The growth in demand for overseas tele-communication facilities in India has reached proportions which cannot any longer be met by conventional HF radio facilities. India has, therefore, to provide herself with modern facilities like wide band micro-wave communications *via* satellites. India has joined the international consortium of nations set up for installing a global communication satellite system. India's share of capital participation in this consortium is one half of one per cent. Plans are in progress to establish an earth station at Arvi, near Poona to utilize communication satellite facilities when they become available to this part of the world.

TABLE XXXIX

Growth of Postal and Telecommunication Services from 1957-1962

	1856-57	1913-14	1948-49	1956-57	1964-65	1965-66	1966-67	1967-68	1968-69
1. Post Offices	787	18,946	26,760	58,871	96,895	96,936	97,080	99,833	102,477
2. Combined Offices	—	3,147	3,284	5,511	8,216	8,581	8,289	8,704	8,970
3. Postal articles handled (Total No. in Millions)	38	1,050	2,264	3,262	5,714	6,555	6,212	6,285	6,152
4. Unregistered parcels & packets (Millions)	—	65	199	342	578	615	—	—	—
5. Insured articles No. (Millions)	—	2.9	3.6	4.7	5.3	5.5	6.0	6.1	6.0
Amount (Crores)	—	Rs. 73	Rs. 146	Rs. 139	Rs. 157	Rs. 172.0	Rs. 224	Rs. 236	Rs. 223
6. Money Order No. (Millions)	—	31	44.9	67.4	91.4	91.5	96.7	94.5	95.8
Amount (Rs. Crores)	—	Rs. 57	Rs. 150	Rs. 247	Rs. 434	Rs. 477	Rs. 507	Rs. 559	Rs. 559
7. P.O. Savings Bank Accts. No. (Millions)	—	1.6	3.4	6.4	12.1	13.7	15.2	17.0	18.4
Balance of credit (Rs. Crores)	—	Rs. 23	Rs. 149	Rs. 322	Rs. 556	Rs. 644	Rs. 702	Rs. 760	Rs. 812
8. Postal Life Insurance Policies	—	—	92,629	139,910	177,508	188,678	190,502	200,885	221,508
Amount invested (Rs. Crores)	—	—	Rs. 19	Rs. 33	Rs. 42	Rs. 45	Rs. 49	Rs. 53	Rs. 61
9. Surface Mail Routes (Miles)	36,933	155,806	138,924	253,256	634,169**	675,165**	666,082**	661,680**	670,514**

TABLE XXXIX (Contd.)

	1856-57	1913-14	1948-49	1956-57	1964-65	1965-66	1966-67	1967-68	1968-69
10. Air Mail Routes	—	—	N.A.	19,416	58,683**	60,065**	61,580**	61,194**	4,1,563**
11. Staff	25,000	106,000	168,600	301,800	470,370	490,354	505,659	519,608	534302
12. No. of Telegraphic Offices	144*	10,340	7,781	10,052	12,151	12,612	13,019	13,539	14,594
13. No. of Telegrams (Million)	N.A.	17	27	35	41	44	44	46	49
14. Telephone Exchanges	—	130	2,800	6,202	11,233	12,701	13,429	14,132	15,182
15. Trunk Phone Calls (Millions)	—	—	4	21	54	58	57	63	71
16. Telephones No.	—	5,193	120,000	309,000	766,000	858,000	933,000	1,017,000	1,120,000
17. Capital Outlay end of year	—	N.A.	Rs. 40	Rs. 100	Rs. 234	Rs. 265	Rs. 295	Rs. 321	—
18. Expenditure Postal (Crores)	Rs. 0.36	Rs. 3.05	Rs. 18.27	Rs. 31,42	Rs. 60.65	Rs. 68.92	Rs. 78.29	Rs. 88.35	Rs. 100.14
Telegraphs and telephones (Crores)		Rs. 1.36	Rs. 8.37	Rs. 18.91	Rs. 62.78	Rs. 68.55	Rs. 81.05	Rs. 98.53	Rs. 111.17
19. Revenue Postal (Crores)	Rs. 0.28	Rs. 3.61	Rs. 16.70	Rs. 32.75	Rs. 59.37	Rs. 66.00	Rs. 70.15	Rs. 74.24	Rs. 93.98
20. Telegraphs and Telephones (Crores)	—	Rs. 1.56	Rs. 12.71	Rs. 23.99	Rs. 64.09	Rs. 71.54	Rs. 89.19	Rs. 100.07	Rs. 115.22

* Relates to 1862-63 N.A. Not available **Kilometres

CHAPTER X

TRADE AND COMMERCE

I. Inland Trade

The size of the total market is in modern economic literature regarded as an important determinant of economic progress just as the share of the market of each unit determines its survival value. Thus value and quantum of trade — foreign as well as domestic—provide a major parameter of economic strength, actual and potential. Even in large countries with a well-knit transport and communication system with the outside world, inland trade is generally much greater than international trade which touches a comparatively few commodities and a relatively small portion of them. In the case of the United States of America, for instance, inland trade has been calculated over a decade to be about ten times foreign trade. In India's case, where production is largely for home consumption, and communications with the world outside are few, domestic trade must be relatively more important, though qualitatively foreign trade would be more significant because of its ability to supply a vast range of goods not produced in the country. But even here for exports, domestic production must provide the base of an export strategy which must have a "surplus" over domestic needs in order to endure.

We may begin our discussion with the size of India's inland trade. It may be best to begin with a definition in view of the terminological confusion that surrounds the subject. Inland trade may be taken to include all exchanges that go through the money mechanism. In this sense, it can be said to be fairly measured by the total money transactions in the country. In any worthwhile sense, however, transactions pertaining to the same goods in the same form should not enter more than once, only because they change hands twice or thrice from the producer to the consumer. To be on a comparable basis with foreign trade, once the value of one commodity used as input is taken into account, only value added should be calculated later, and both exports and imports should be excluded.

Unfortunately no reliable estimate of such trade is available. In 1921, K. T. Shah made an estimate of total inland trade of Rs. 2,500 crores compared with Rs. 550 crores of foreign trade. The year 1921 can, however, hardly be called a normal one. A substantial portion of our food and other rural production is for self consumption or exchange in kind; and this portion must be excluded from trade estimates. The estimated size of inland trade for the National Planning Trade Sub-

Committee was Rs. 6,000 crores for 1925-29 (excluding Burma and Indian States). The sub-committee on trade thought this estimate should be raised to Rs. 7,000 crores to allow for the trade of Indian States. The estimate was for the total turnover. A more accurate estimate of the upto-date trade comparable with exports would be about Rs. 17,500 crores — about fifteen times the export trade*. This higher figure considerably underestimates the real change that has taken place in the interval due to difference in the method used.

While statistics of the aggregate value of inland trade have certain uses, much more important from our viewpoint would be the composition and the direction of this trade, their behaviour over time, and break-up into rural-urban, and regional-interregional. No such overall figures are available. What is available is scattered information regarding some types of movement of goods. Statistics regarding rail movement are available, a great spurt in the total goods' traffic by weight. Value figures cannot be obtained. Indian Railways carried 93.0 million metric tonnes of goods in 1950-51; by 1968-69 the goods carried had increased to 204.0 million metric tonnes — an increase of 119.4 per cent in about two decades. Figures of rail movements of principal commodities showed a similar upward trend, the increase being most marked in case of cement, iron and steel, iron and other ores, and paper and paper-boards. The rail movements of oil-seeds, vegetable oils, cotton manufactures jute, and jute manufactures and tea declined or remained stagnant (Table I).

TABLE I

Movement of Principal Commodities by Rails 1950-51, 1960-61 and 1968-69

Commodities	*Railway Movement (in '000 tonnes)*			*Percentage of rail movement to production*		
	1950-51	1960-61	1968-69	1950-51	1960-61	1968-69
Coal	30,811	50,396	68,638	94.2	95.8	91.6
Cement	2,471	6,548	9,397	93.1	83.5	78.7
Iron and steel	2.750	7,588	9,652	146.2	138.2	128.1
Iron and other ores	1,055	11,140	21,916	82.3	75.1	84.4
Manganese ore	881	1,230	1,268	98.2	102.6	81.8
Foodgrains	7,805	12,659	15,849	14.8	14 7	15.9
Oil-seeds	1,595	1,517	1,360	30.9	22.9	19.6
Vegetable oils	—	—	—	—	—	—
Sugar	933	1,488	775	82.3	49.1	21.8
Raw cotton	525	536	473	71.4	45.1	43.8
Cotton manufacture	472	380	269	81.0	38.3	22.0
Raw jute	470	644	677	78.9	86.6	114.4
Jute and jute manufacture	271	263	278	31.9	24.3	25.6
Salt	1,576	1,981	2,728	59.2	57.7	54.1
Tea	265	250	260	95.0	77.9	77.2
Paper and paper-boards	193	442	795	92.8	99.3	103.4

* The national income for 1967-68 is estimated at (current prices) Rs. 27,900 crores. Consumption not entering into exchange may be placed roughly at Rs. 9,200 crores. The remaining may be compared with the exports of Rs. 1,200 crores.

More recent figures are available only for wagons loaded. They show a similar trend for most of the common commodities. Iron ore movements show the largest increase. The wagons loaded of cement, pig iron, iron and steel, and grains and pulses also have considerably increased. On the other hand, movements of raw cotton and cotton manufactures show a decline (Table II).

TABLE II

Number of Wagons Loaded by Commodities

Commodities	Broad Gauge			Meter Gauge		
	1951-52	1960-61	1968-69	1951-52	1960-61	1968-69
Coal and coke	1,145	1,337	2,176	207	254	338
Grains and pulses	358	455	565	268	382	375
Oil-seeds	50	59	60	51	73	61
Raw cotton	35	30	26	26	22	24
Cotton manufactures	24	13	6	13	3	1
Raw jute	43	56	67	42	60	48
Jute manufactures	6	8	10	5	7	8
Sugar	38	55	31	59	73	35
Sugarcane	79	65	25	189	227	118
Cement	102	213	320	69	188	230
Pig iron	14	50	63	6	6	7
Iron and steel (others)	117	260	360	22	57	53
Tea	10	13	17	27	19	20
Manganese ore	49	58	50	11	21	15
Iron ore	146	446	904	8	75	85
Other ores	2	12	55	3	22	11
Total number of wagons loaded	4,230	6,164	8,557	2,607	3,593	3,692

Estimates of the volume of traffic carried by road vary widely according to the assumptions made and the organizations attempting them. For instance, the ton miles performed in 1958-59 by commercial road transport were estimated at 8,500 millions by the Secretariat of the Committee on Transport Policy and Co-ordination, at 12,800 millions according to the data given by the Indian Roads and Transport Development Association and 17,400 millions on the assumptions indicated by the Railway Board. It is, therefore, difficult to say anything precise on the point. The only firm data are the number of trucks registered in India which show an increase between 1948-49 and 1968-69 — from 73 thousand to 301 thousand. The trucks numbered 82 thousand in 1950-51. According to the estimates of the above Secretariat, road transport carried 11 per cent of the total tonne kilometres moved in 1948-49; in 1968-69 the share increased to about 24.2 per cent. Since relatively more of the road traffic is of high-priced goods and for short distances, the proportion of goods carried by roads to the total movement by rail and road by value must be greater.

Statistics of inter-block trade by rail and steamer are available in a long time series; figures of trade within the bloc are not unfortunately available. Break-down by certain important commodities can also be obtained. These, however, partake of the nature of international or inter-regional trade statistics where the creation of new States or amalgamation of existing States vitiates the series. The trade blocks are mostly based on political boundaries. The changes in the number and boundaries of the States that have taken place since independence have, therefore, made these figures non-comparable over years. For example the earlier figures pertained to 22 principal blocks, we have now 31 blocks of which 9 are port blocs (Andhra ports, Bombay, Calcutta, Cochin, Goa, Madras port, other Madras ports, Pondicherry and Saurashtra ports). Exports from these ports by rail are often re-exports of foreign goods, and imports into them are for export abroad. The port figures have, therefore, to be interpreted after taking into account the foreign trade through them. The annual figures show in all major commodities — agricultural, mineral and industrial — a great inter-dependence. Many manufactured and other commodities are, however, not included in this series; and the absence of value figures makes it impossible to draw any balance of trade picture for the blocks (Table III).

TABLE III

Commodities	*Major exporting trade blocks*	*Major importing trade blocks*
Rice (not in hush)	Ports (Andhra, Cochin, Calcutta), West Bengal, Punjab, Orissa, Tamil Nadu.	Ports (Calcutta, Tamil Nadu, Cochin), Andhra, Kerala and Maharashtra.
Wheat	Ports (Andhra, Gujarat, Cochin, Tamil Nadu, Bombay, Calcutta), Punjab.	Andhra Pradesh, Assam, Bihar, Delhi, Gujarat, Madhya Pradesh, Tamil Nadu, Maharashtra, Karnataka, Punjab, Rajasthan, Uttar Pradesh and West Bengal.
Jute raw	Assam, Bihar, West Bengal.	Calcutta Ports and West Bengal.
Raw cotton (lint) (Indian and foreign)	Rajasthan, Punjab, Karnataka, Maharashtra, Madhya Pradesh, Gujarat.	Uttar Pradesh, Tamil Nadu, Gujarat, Andhra Pradesh, and Bombay port.
Cotton piecegoods	Gujarat, Madhya Pradesh, Maharashtra and Bombay port.	Bihar, Madras, Uttar Pradesh and Calcutta and Tamil Nadu ports.
Coal and Coke	Bihar, Madhya Pradesh, Maharashtra, Orissa and West Bengal.	Andhra Pradesh, Delhi, Gujarat, Tamil Nadu, Karnataka, Rajasthan, Uttar Pradesh and Calcutta port.
Iron and steel bars, sheets, girders and other forms	Bihar, Madhya Pradesh, West Bengal, Orissa, Punjab and Calcutta ports.	Andhra Pradesh, Assam, Delhi, Gujarat, Tamil Nadu, Maharashtra, Uttar Pradesh and Calcutta, Bombay and Madras ports.
Oil-seeds	Andhra Pradesh, Gujarat, Maharashtra, Madhya Pradesh, Punjab, and Uttar Pradesh.	Bihar, Tamil Nadu, West Bengal and Bombay, Calcutta ports.
Salts	Gujarat, Maharashtra, Rajasthan and Gujarat ports.	Bihar, Madhya Pradesh, Orissa, Uttar Pradesh, Karnataka.

Table III (Contd.)

Sugar (including *Khandsari*)	Andhra Pradesh, Bihar, Maharashtra, Uttar Pradesh.	Gujarat, Madhya Pradesh, Rajasthan, West Bengal and Bombay and Calcutta ports.
Sugar — raw (*Gur*, jaggery and *Shakkar*)	Andhra Pradesh, Punjab, Maharashtra, Uttar Pradesh, Tamil Nadu.	Gujarat, Rajasthan and Calcutta ports.

The defects of inland trade statistics have been widely commented upon and were ascribed before independence to the indifference of foreign rulers to internal trade. This reasoning no longer holds good but deficiencies largely persist.

II. Evolution of Foreign Trade

Evolution before Independence: Since the dawn of civilization, India seems to have been eminent in the field of foreign commerce. The diversity, quantity and prosperity of this trade were the envy and admiration of the world, but judged by the present standard the quantum would no doubt appear insignificant. The international division of labour then showed India to be comparatively very developed. In earlier periods India seems to have exported manufactures like fine cotton and silk textiles, iron goods, wooden goods, ivory work, precious stones and indigo, and imported gold and raw materials like silk, metals, etc. Great Britain in its early years of the Industrial Revolution found it necessary to protect many of its new manufactures against imported Indian products. This was indeed a great tribute to the comparative stage of artistic and technical excellence that India had reached.

Modern Indian foreign trade may be said to have made a firm start in 1870, after the opening of the Suez canal, the rapid development of the shipbuilding industry, the spread of Industrial Revolution in Europe the opening of the Indian railways and the firm establishment of peace and order in India after the chaos that had followed in the wake of the break-down of the Mughal system of administration. Indian foreign trade in this period had three distinguishing characteristics — the importance of raw materials in exports and of manufactured goods in imports, the overwhelming importance of the U.K. as a supplier of imports and only a little less so as a market for exports and a favourable balance of trade. These characteristics continued to mark Indian foreign trade for seven decades, though in a modified form. Total foreign trade increased in value at an annual compound rate of 4 per cent.

Percentage increase in trade over previous decade	
1879-1980 to 1888-89	46.1%
1889-1990 to 1898-99	22.9%
1899-1900 to 1908-09	44.7%
1909-1910 to 1918-19	49.3%
1919-1920 to 1928-29	51.1%

The above position continued till the Great World Depression intervened and changed almost all the earlier features of world trade; the quantum growth, though lower, was satisfactory.

Indian trade expanded at a faster rate than the trade of many developed nations in the period prior to the First World War, but afterwards its relative performance was less satisfactory. Different groups of commodities naturally participated in this increase in different proportions. Manufactured imports increased less then imports of raw materials, a first indication of more rapid industrialization. Exports of manufactured goods also advanced at a higher rate than those of raw materials, though the change was not as significant as in the case of imports, for it was to the domestic market that new production, particularly textiles, was largely directed.

TABLE IV

Annual Percentage Increase of Exports and Imports of Raw and Manufactured Products

	Annual percentage increase			
	Between	*Between*	*Between*	*Between*
	1879 *and* 1892	1892 *and* 1907	1906-7 *and* 1912-13	1912-13 *and* 1927-28
Manufactured Imports	2.8	6.2	15.3	3.0
Raw Imports	6.5	8.5	26.0	6.0
Manufactured Exports	15.0	9.3	7.3	3.3
Raw Exports	3.0	3.8	3.8	2.5

The same tendency was manifest during the Depression, Recovery and War periods.

These transformations were welcome to Indian opinion. Because of the diversity of its resources, its size and its development, the index of export dispersion in India was much higher than that of other similar underdeveloped economies. The foreign trade of India thus began to reflect the economic structure of an industrializing country. Both export and import trade became less dependent on Great Britain; Germany, the U.S.A. and Japan participated in the share thus released. In the five years ending 1869-70, U.K. accounted for 53.2 per cent of our exports and 73.7 per cent of imports. Table V indicates the broad change since 1901.

During the depression, due to peculiar circumstances, U.K. partially gained the lost ground, but this was a special phenomenon likely to be reversed soon. In this long period involving the First World War and the Great Depression, most of the years were characterized by heavy export surpluses. There were only two years marked with trade deficit, 1920-21 and 1921-22 and a few years of small surpluses. While a part of the export surplus was necessary to meet the deficit on invisible account including "Home Charges", a substantial surplus remained even on current account and except in the thirties, imports of precious metals

TABLE V

	Percent share in imports						Percent share in exports					
	1901	1913	1919	1929	1932	1937	1901	1913	1919	1929	1932	1937
U.K.	63.8	63.0	45.0	44.7	35.4	38.4	30.1	25.1	29.2	20.9	27.5	32.4
British Empire	74.6	69.7	57.4	53.9	44.8	49.2	52.1	40.8	52.8	34.8	43.6	45.6
U.S.A.	1.7	3.2	9.5	7.0	10.1	6.5	6.9	7.7	13.8	11.8	8.9	9.4
Germany	3.4	6.4	--	6.2	8.0	10.0	8.8	10.3	—	9.7	6.5	5.1
Japan	1.0	2.5	19.8	6.9	10.5	17.0	2.0	7.7	12.1	10.4	8.9	15.3

could be financed from this. Modern planners would look back with envy on this feature, which might have been utilized for imports of capital goods to accelerate industrialization if there had been a real will directed to that end.

In judging this period and comparing it with later ones, there is one special feature of this period that should be remembered. Throughout this period, with the exception of the First World War, free multi-lateral trade prevailed. It was such an article of faith with the British rulers that they carried it to a ridiculous length in the matter of cotton import duties, when they insisted on lowering the small revenue duties on imported cotton yarn and manufactures, and countervailing them by excise duties. This article was haltingly departed from with the policy of discriminating protection laid down by Indian Fiscal Commission. More important departures were necessitated by the policies followed all over the world in the depression which led in India to the adoption of the Imperial Trade Preference and the Trade Agreements with U.K. and Japan. But even during this period, direct controls either on the commercial or exchange side were infrequent, and the discrimination practised was mild. The trade developments of the period can, therefore, be truly described as the results of free trade policies.

The Second World War changed greatly the quantum, composition and direction of Indian foreign trade. Owing to shipping shortages, non-availability of goods abroad, cessation of trade with enemy and enemy-occupied countries (whose number increased with the course of war) etc., the quantum of imports declined sharply, even though our willingness and ability to pay for imports increased. Some of these adverse factors also operated on the export side, but the allied demand for defence and other essential goods was insatiable, and India's capacity to export was strained to this end. The export quantum, therefore, decreased less. Exports at their lowest level in 1943-44 were more than half the 1938-39 level; imports fell in 1942-43 to two-fifths of the pre war level. Exports of textile manufactures — cotton and jute, greatly increased, while exports of raw cotton shrank. On the import side, raw materials and semi-manufactures, especially cotton and mineral oils, increased in importance; imports of machinery, iron and steel and cotton manufactures declined. Trade with Western Europe (excluding U.K.) and Japan ceased; and their place was taken up by the U.S. The British Empire became a more important purchaser of Indian goods. These changes were, however, the results of war-time circumstances and carried within themselves the seeds of their reversal. During the war, the Indian economy had been greatly starved both of consumption goods and capital goods, and there was a large pent-up demand for imports. Individuals and businesses had accumulated surplus liquid funds, which

could be utilized for purchases from abroad. In the case of Railways and many other industries, an urgent rehabilitation programme was essential. Even after the end of the war, however, owing to world scarcityof goods, competing claims of reconstruction from all over the world, dollar scarcity, and inconvertibility of sterling balance, the return to normalcy was likely to be postponed. As these limitations disappeared one by one, war-time trends were likely to be reversed, and after an initial period of adjustment and adverse balance of trade, a new and more normal pattern was likely to emerge.

Evolution after Independence: As it happended, however, before things could settle down to normal, important political events intervened which placed persistent pressure on India's balance of payments. In August 1947, two years after the cessastion of war, came partition and independence. Hitherto, India and Pakistan had been one country, and trade between them had developed unhindered. Their economies had become highly inter-dependent. India produced most of the manufactured cotton and jute goods, while Pakistan supplied 73-80 per cent of raw jute and 40 per cent of cotton required by these industries. West Pakistan having a larger proportion of irrigated land was surplus in foodgrains, and though the Eastern part (now Bangla Desh) was deficit, on the whole Pakistan had a small surplus which went to alleviate the substantial food deficit of undivided India. Pakistan, on the other hand, used to purchase coal, cement and a variety of other manufactured goods from India. Table VI showing trade between India and Pakistan gives a broad idea of the division of labour that had developed.

TABLE VI

India's Trade With Pakistan 1948-49
(in crores of rupees)

Imports		*Exports*	
Raw jute	71.23	Cotton manufactures Incl. yarn	21.10
Raw cotton	16.68	Jute manufactures	5.51
Agricultural seeds	4.37	Manufactured tobacco	5.29
Foodgrains	1.79	Artificial silk goods	5.16
Hides and skins	1.78	Vegetable and other non-essential oils (mainly mustard oil)	4.62
Building and engineering items	1.23	Tea chests	3.04
Others	10.01	Spices	2.43
		Coal and coke	1.78
		Tea	1.48
		Molasses	1.48
		Leather	1.37
		Metals (iron and steel)	0.95
		Boots and shoes	0.86
		Sugar	0.86
		Rubber manufactures	0.75
		Others	15.73
	107.09		72.41

Partition was bound to have in due time important effects on the course of Indo-Pakistan trade, apart from the purely statistical effects that would ensue because of changing a part of the formerly internal trade into foreign trade. Pakistan was likely to pursue a vigorous policy of industrialization, even as India had done earlier, and naturally the industries it would think of developing first would be the simple jute and cotton textile industries, for which the raw materials were being domestically produced in abundance, thus reducing the exportable surpluses of these raw materials. On the Indian side, the scarcity of foreign exchange and the decrease in Pakistani demand for Indian manufactured goods would lead to a policy of import substitution in respect of raw cotton and jute. But given understanding and willing acceptance of the consequences of the new situation the process could have been more gradual. and the transition could have been made smoother by suitable agreements. This would also have helped the quicker development of both countries. Unfortunately, the atmosphere in which partition was agreed to and the events which followed in their wake vitiated the climate for such an agreement. When India devalued in 1949, and Pakistan did not, raw jute prices raised all the difficulties connected with the determination of a fair and equitable price under bilateral monopoly. The views of both sides so conflicted that a trade war ensured, and legal trade was confined to a trickle in spite of many efforts made to arrive at satisfactory trade agreements. Imports from Pakistan declined to Rs. 44 crores in 1949-50 and exports to Rs. 40 crores. This put an additional strain on the Indian economy.

The year 1947 witnessed another major difficulty for India. The 1946 U.S. loan of $3,750 millions to the U.K. was exhausted by September, 1947, much earlier than anticipated without doing any perceptible benefit to the British economy and exchange control all over the sterling area was tightened. As a measure of alleviating the strain on the balance of payments, England and many other members of the sterling area including India devalued in September, 1949. Though it was a protective devaluation meant only to safeguard the export position *vis-a-vis* other members of the sterling area, it had the effect of increasing the value of Indian exports. Import control was so tightened that imports diminished even in terms of rupees. The Korean War boom gave a brief welcome upward thrust to exports, through changes in export prices. Imports were liberalized but owing to scarcity of goods they did not show a substantial increase till 1951-52 when they reached the peak of Rs. 979 crores.

On January 26, 1950, India was declared a Republic. One of the first major steps taken by the Government was the setting up of a Planning Commission and the adoption of Five-Year Plans to increase the

tempo of economic development and the more equitable distribution of its fruits. It took some time for the impact of the Plan to be felt on foreign trade. But by the second year of the Second Five Year Plan, 1957-58, it led to a radical transformation in the structure of our import trade.

The aim of the First Five Year Plan was largely the restoration of the pre-war per capita standard of living though it was also aimed to build the overheads and lay the foundations for rapid progress in future. It was a modest plan of a Rs. 2.069 crores, aiming at a national income increase of 11 per cent. The next Plan was much bigger, contemplated a relatively greater investment in industries, was heavy industry oriented, and aimed at the socialist patttern of society. It visualized a public sector outlay of Rs. 4,800 crores and a national income increase of 18 per cent. The Third Plan was cast in the same mould and estimated a public spending of Rs. 7,500 crores to achieve a 30 per cent income increase in total income and 17 per cent rise in per capita income.

The three Fve-Year Plans were followed by three annual Plans covering the period 1966-1969. These annual Plans involved an outlay of Rs. 6,665 crores in the public sector. The Fourth Five Year Plan covering the period 1969-1974 places the public sector spending at Rs. 15,902 crores.

The size and nature of the First Plan meant a modest quantum of developmental imports. Favourable monsoons and good food production in the later years of the First Plan reduced the need for food imports, so that foreign aid and use of sterling balances were minimal. The draft on foreign reserves was only Rs. 127 crores as against the estimate of Rs. 290 crores. Net long-term private and official capital and official donations accounted for only 8 per cent of the exchange receipts and 10 per cent of Plan expenditure. With increases in public and private investment, however, developmental imports greatly increased. By the middle of the Second Plan, the demand for imports had so greatly increased that in spite of using up the available foreign exchange reserves and generous foreign aid amounting to 24 per cent of Plan outlay, not even the Plan or developmental imports could be permitted, and foreign exchange became a severely limited factor on the progress of the Plan. The rap'd industrial progress and the import-substitution programmeslaunched since then have not helped the position substantially. Throughout this period, India had to maintain a delicate balance between the natural desire to permit the imports essential for achieving the Plan target (and the foodgrain imports required to feed her teeming millions), and the need to live within the bounds of foreign exchange receipts on current and long-term capital account (Table VII).

TABLE VII

Foreign Trade of India Value and Quantum

(Rs. in crores)

	*Ex-ports**	*Im-ports*	*Balance of trade*	*Export ffiuan-tum*	*Import ffiuan-tum*	*Export price*	*Import price*	*Terms of Trade*
					(Base: 1952-53—100)			
1948-49	459	644*	—185	92	114	84	78	108
1949-50	506	648	—142	94	131	85	75	113
1950-51	601	650	— 49	105	100	93	81	115
1951-52	733	970	—237	90	135	142	101	141
1952-53	577	702	—125	100	100	100	100	100
1953-54	531	610	— 79	100	93	92	92	100
1954-55	592	656	— 64	105	110	98	89	110
1955-56	596	679	— 83	115	116	90	87	103
1956-57	604	841	—237	110	137	94	91	103
1957-58	561	1,035	—474	119	156	94	98	96
1958-59	681	906	—325	108	140	93	92	101
					(Base 1958 — 100)			
1959-60	640	961	—321	107	110	100	93	107
1960-61	660	1,140	—480	100	128	110	96	115
1961-62	680	1,107	—427	105	121	109	98	111
1962-63	714	1,136	—422	112	131	106	94	113
1963-64	793	1,223	—430	126	135	105	97	108
1964-65	816	1,349	—533	135	146	107	29	108
1965-66	805	1,408	—603	124	154	113	104	109
1966-67	1,157	2,078	—921	119	149	169	150	113
1967-68	1,199	2,007	- 808	122	166	169	136	124
1968-69	1,360	1,862	—502	142	151	166	141	118

*Includes re-exports.

*Excludes land trade with Afghanistan and Iran.

III. Analysis of Foreign Trade

Exports: Since the exports were less affected by restrictions than imports, one may begin with a brief account of how they fared. The great scarcities immediately after the end of the Second World War led India to resort to export quotas and duties to maintain domestic supplies and contain inflation. Destinational export quotas were laid down to encourage exports to hard currency areas. The fear of the domestic consequence of devaluation and the Korean export boom strengthened this restrictive tendency. Nevertheless, the boom had a stimulating effect on exports, whose quantum increased from 92 in 1948-49 to 105 in 1950-51. In 1951-52, exports fell below 1948-49 level, but the export price index increased to 142, leading to the record export earnings of Rs. 733 crores. The First Five Year Plan document devoted some thought to the need for increased exports, and provided for substantial increases in production of certain export crops like oil-seeds. It was estimated that by the end of the First Five Year Plan exports would rise by 10 per cent over the already high 1950-51 level and 30 per cent

over a 1948-49. Compared with the later period cotton piece-goods, manganese ore, coal and coke, and coir exports were expected to double or even do better. Exports, however, reached the 1950-51 quantum only in 1954-55 and in value terms in 1955-56 (1951-52 as noted above was an exception for the value of exports).

The Second Five Year Plan began with a happier domestic situation with many export controls removed and little need for discrimination in export supplies. It was only with the exchange crisis in 1957-58, that the need for increasing exports was greatly felt. It was realized that imports could not be further appreciably curtiled without hampering development, and the prospects of aid to cover the entire gap between the export earnings and the payments for imports needed for maintenance and development at a satisfactory rate were remote. Export promotion committees were appointed, and according to their recommendations export duties were removed or reduced, restrictive export quotas largely eliminated and provision made for rebate or drawback of import duties on raw materials and components used in manufacture of export goods. Railway freight concessions were given for some items, import facilities provided and certain concessions given in direct taxes. Export Promotion Councils were set up for important export commodities and in some cases Commodity Boards were entrusted with the function of export promotion. Emphasis was laid on the need to diversify export trade by exporting new manufactures in engineering goods, chemicals, plastics etc. Certain instituional changes like the State Trading Corporation, bilateral trade treaties and rupee payment agreements were attempted. Their total effect durmg the Second Five Year Plan was negligible. The average value of exports in the period were about the same as in the earlier Plan period, including 1951-52. In terms of quantity, there was an increase of 10 per cent.

The Third Five Year Plan commenced with a recognition of the urgent need for export increase. On very conservative estimates, financing the imports needed for the fulfilment of a Rs. 10,000 crore overall investment programme required average additional export earnings of Rs. 150 crores a year and foreign aid of Rs. 3,200 crores in the five-year period (including PL 480 imports). Since actual requirements exceeded calculated needs and all sorts of emergencies calling for increased imports were likely to arise, the urgency for increased export promotion could not be gainsaid. As it was, the conflict with China that occured soon after upset the import requirement calculations. During this period, a Ministry of International Trade was set up and a Board of Trade was formed. A vigorous export incentive scheme was launched. For the first time, exports began to pick up.

The composition of exports has undergone only small changes during

the planning period, jute manufactures, cotton manufactures, and tea continued to account for 45-50 per cent of the total export earnings. Vegetable oils, oilcakes and oil-seeds, hides and skins, spices, cashew kernels, tobacco and raw cotton were responsible for another 1/5th of of exports. Jute exports and tea occasionally changed first places, but cotton exports almost always remained third. Two new groups of commodities emerged as important export commodities — ores and minerals and engineering goods. Iron ore exports were negligible in 1950-51. They amounted in the First Plan period to Rs. 21 crores and in the Second Plan to Rs. 62.6 crores. In 1963-64, they accounted for Rs. 36 crores of exports. The first group owes its significance to the increasing steel production in the world, and the foresight of the State in entering into new trade agreements with Japan. The second is symbolic of the type of potential export commodities in which future India will come to excel (Table VIII).

Imports: While exports have been mainly dependent on world demand and very imperfectly amenable to domestic policy measures, imports have been largely a matter of Government policy. The available export earnings and the foreign exchange that could be obtained in other ways have put a ceiling to the imports that could be obtained. Within this ceiling the demand for foodgrains imports had to be first accommodated. Though there was some talk of saving foreign exchange through reducing foodgrains imports by rationing and other measures to curtail food demand, so far the size of foodgrains imports has been largely dictated by the size of domestically available foodgrains and the need to contain foodgrains prices. Fortunately, in the latter part of our period this imperative need has not meant a large drain on valuable foreign exchange as additional food imports were largely covered through PL 480, which, whatever its other drawbacks, meant no immediate foreign payments nor implied a reduction in the quantum of other foreign aid. Imports other than food can be influenced by policy decisions, though maintenance imports will command some priority. In the First Plan, imports were only liberally controlled, but they remained at a comparatively low level, the maximum being Rs. 979 crores reached in 1951-52. The really great spurt in imports was in 1957-58 when it reached the record figure of Rs. 1,036 crores. Import controls had again to be tightly clamped. As time went by and scarcities began to be felt, more imports had to be allowed and imports reached the still higher level of Rs. 1,045 crores in 1960-61. Of the two sectors, imports on Government account showed bigger fluctuations, partly because foodgrains were brought from outside on Government account. In the first year of stringent import controls, 1958-59, Government imports exceeded private imports though for the Second Plan period as a whole they formed

TABLE VIII

India's Exports By Commodity Groups, 1948-49 to 1968-69

	1948-49	1949-50	1950-51	1st Plan Annual Average	2nd Plan Annual Average	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69
Consumer Goods	120.9	164.1	245.9	206.7	232.1	228.4	255.8	250.8	289.0	260.5	364.7	395.6	396.8
Percentage to total	(26.4)	(32.5)	(40.9)	(34.0)	(38.2)	(33.7)	(37.7)	(32.7)	(35.5)	(32.3)	(31.6)	(33.2)	(29.2)
Tea	68.7	72.7	80.4	106.6	128.0	121.4	128.8	123.2	123.5	102.7	158.4*	179.1	154.9
Cotton piece-goods	36.2	59.2	118.0	59.8	57.6	48.4	46.2	49.7	64.2	63.3	75.6	79.4	88.0
Black pepper	2.7	14.5	20.4	12.8	5.1	8.1	5.9	1.9	6.7	10.8	12.7*	13.0	9.7
Tobacco (Mfrd. & Unmfrd)	8.3	12.0	18.5	15.0	15.2	15.0	18.9	21.7	25.8	21.7	22.5*	35.6	33.8
Oil cakes	0.1	0.1	—	1.4	10.1	17.3	36.6	32.9	39.8	34.6	50.0*	45.5	49.5
Cashew kernels	4.9	5.6	8.6	11.3	16.1	18.2	19.4	21.4	29.0	27.4	45.5*	43.0	60.9
Raw Materials or Intermediated Goods	203.7	204.0	217.2	259.9	213.6	242.1	254.3	283.8	284.8	296.3	444.3	418.4	461.3
Percentage to total	(44.4)	(40.3)	(36.1)	(42.7)	(35.1)	(35.8)	(37.5)	(37.0)	(35.0)	(36.8)	(38.5)	(35.1)	(33.9)
Jute manufacture	146.6	127.0	114.0	151.1	115.4	143.7	154.9	156.1	167.2	181.6	209.0	233.5	218.0
Hides and skins (tanned)	12.7	21.0	25.3	22.6	23.2	25.3	22.5	26.2	27.2	28.2	61.9	53.2	72.0
Hides and skins (raw)	5.6	7.0	9.6	6.9	8.5	8.3	10.7	9.6	9.0	9.6	16.1	7.4	5.0
Manganese ore	1.8	5.8	8.0	17.0	17.1	10.4	7.9	8.3	13.1	11.0	14.2	11.1	13.5
Iron ore	—	—	0.2	4.2	12.5	17.5	19.8	36.4	37.4	39.4	70.2	74.8	88.4
Other ores		2.0	1.5	6.5	7.0	8.6	4.1	6.4	7.6	9.1	12.2	13.2	29.7
Raw cotton	14.0	10.6	4.9	16.5	11.6	14.3	17.0	16.8	14.2	13.1	17.5	19.4	15.7
Cotton waste	5.1	8.2	12.4	9.3	5.2	4.0							
Vegetable oils	10.9	7.6	25.3	21.9	11.2	5.8	13.1	19.8	7.1	4.1	2.8	4.0	11.7
Oil-seeds	7.0	14.8	16.0	3.9	1.9	4.2	4.3	4.2	2.0	0.2	0.4	1.8	7.3
	134.1	138.0	138.2	142.0	162.1	206.4	168.0	232.3	239.4	248.8	343.9	378.8	501.9
Others													
Percentage to total	(29.2)	(27.2)	(23.0)	(23.3)	(26.7)	(30.5)	(24.8)	(30.3)	(29.5)	(30.9)	(29.9)	(31.7)	(36.9)
Total	458.7	506.1	601.3	608.5	607.8	676.9	678.1	766.9	813.2	805.6	1,152.9	1,192.8	1,360.0

**Economic Survey*, Government of India 1969-70 — Other Sources: (i) *Reserve Bank of India Bulletin*, March 1970, (ii) *Statistical Abstract of the Indian Union*, (iii) *Monthly Statistics of the Foreign Trade of India*, (iv) *India* 1968—Publication Division, and (v) *Pocket Book of Economic Information*, 1969.

two fifths of total imports. In the first year of the Third Plan imports sligtly declined but again picked up in the two later years. Import quantum declined only in 1958, but then showed an increase.

There is one interesting point in connection with the behaviour of Indian imports. Since India had stringent import control regulations and there were no rigid compulsions about imports except food, one would have expected some regularity in their behaviour in relation to the import capacity. One would not be prepared for sudden and unjustified use of reserves, nor quick changes in import policies except those following export receipt or aid changes. In the case of India, however, inability to use sterling balance withdrawal facilities or their use at a rate much greater than that provided for was common. Table IX illustrates this point.

In many cases it is the import policy changes that have led to these situations. After 1957-58, however. with the reduction of sterling balances to the minimum safety level, import control was compelled to be more consistent. But a heavy price had to be paid for this late realization; in spite of increase in import quantum both developmental and maintenance imports had to be sharply curtailed with adverse consequences on the rate of growth or the smooth running of the Indian economy.

The thirteen years of planning have been marked by significant changes in the composition of imports. Capital goods showed a three-fold increase in 1963-64 over 1950-51, and formed 42 per cent of the total imports as against 26 per cent at the start. In this group, iron and steel imports increased more than four-fold. Consumption goods retained their relative importance mainly due to increase in foodgrains and electrical goods. Many other developing countries show the same characteristics, but the Indian scene has also been marked by imports, as a result of the successful import substitution programme in raw jute. They declined from 33 per cent in 1950-51 to 17 per cent in 1963-64 and further to about 15 per cent by 1968-69. Mineral oils greatly increased in importance, and chemical imports increased to four-fold, but jute imports almost disappeared.

The above classification of imports does not fully indicate the nature of the transformation of the economy, and the efforts made by the country in this regard. Raw materials and intermediate goods may be imported for different end-uses, for increasing consumption or for increasing investment. Imports of consumption goods may be either for sustenance or nourishment or enjoyment. To bring this out better the Economic Commission for Asia and Far East classifies imports into five categories — (a) consumption goods: food; (b) consumption goods other than foods; (c) materials chiefly for consumption goods; (d) materials chiefly for capital goods, and (e) capital goods. Classifying

TABLE IX

Releases and Utilization of Sterling Balances for Current Purposes, 1947-1957

(Rupees in crores)

	Jan. 1-*Aug.* 14, 1947 (*Undivided India*)	*Aug.* 15. 1947- *June*, 1948	*Year ending June* 30								
			1949	1950	1951	1952	1953	1954	1955	1956	1957
Agreed releases for current purposes	80.0	70.7	—	66.7	66.7	46.7	46.7	46.7	46.7	46.7	46.7
Net use of reserves for current purposes	80.0	4.0	211.8	—28.6	—40.2	169.2	—41.9	—29.6	18.2	42.8	338.1
Excess sterling used over releases	—	—66.7	211.8	—95.3	—106.9	122.5	—88.6	—76.3	—28.5	—3.9	291.4

Indian imports into these categories it is found that with 1941-44 base as 100, while total imports in 1958-60 increased by 26 per cent, capital goods' imports increased substantially by 113 per cent. Materials for capital goods fared the next best — 86 per cent increase. A slight decrease was expreienced in materials for consumption goods — 7 per cent. Food imports declined by one-fifth and other consumption goods by one-fourth. The change in the pattern of imports will appear far more significant if imports in 1968-69 are compared with those of the First Plan period, (Table X).

Direction: Indian export trade shows few directional changes except by way of reversal of war-time trends. Germany and Japan, especially the latter, once more become important markets for Indian goods. Ore exports have increasingly helped Indian export trade with Japan. The U.S.S.R. has acquired new importance as a purchaser of Indian goods. The shares of the U.K. and the U.S. in our exports is more or less static. Pakistan bought 15.7 per cent of Indian exports in 1948-49, its share declined to 1 per cent in 1963-64 and to nil by 1968-69.

The direction of India's import trade greatly changed in the planning period. Partly this was the consequence of the change in the commodity pattern. The increase in the relative importance of machinery and iron and steel simultaneously implied a proportionately greater increase in the relative trade with the developed countries; success in import-substitution of agricultural raw materials meant a relative shrinkage in the imports from under-developed countries. Among the developed countries, changes in competitive strength were of great significance. Both Germany and Japan made miraculous recoveries, and their economies were fast expanding. They made gains on their pre-war shares in the world trade. The U.S. captured a large proportion of world trade in the reconstruction period, but has since been losing ground. The U.S. also belonged to the group of countries whose share was declining in world trade. In both these cases, as far as India is concerned, many factors pulled powerfully in the opposite direction. Imports of developmental goods were often financed by tied aid. Since in the more recent years U.S. aid has been tied, imports from the U.S. were kept up. The commodity aid under PL 480 also had the same effect. India derived most of its food and cotton imports from the U.S. — a developed country, in this manner. The availability of sterling balances largely for use in the sterling area facilitated imports from the U.K. for the first-half of the period.

As a result of all these factors, the import trade with the U.K., specially after the Second Plan, relatively diminished in importance. The U.S. greatly increased its share from 1961-62 level. Japan also regained its place in India's import trade. In addition, the U.S.S.R. became an

TABLE X

India's Imports By Commodity Groups, 1948-49 to 1968-69

(In Rs. crores.)

	1948-49	1949-50	1950-51	1st Plan Annual Average	2nd Plan Annual Average	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69
Capital Goods	150.4	180.6	162.3	196.5	386.6	432.3	466.7	483.3	550.0	568.7	653.8	607.2	610.6
Percentage to total	(23.3)	(27.9)	(26.0)	(26.4)	(39.9)	(45.1)	(41.2)	(42.3)	(40.8)	(40.8)	(31.5)	(30.8)	(32.8)
Machinery	81.9	117.8	91.0	—	159.9	231.1	250.5	277.3	313.0	332.4	408.0	336.0	370.0
Metal (Iron and steel mfrs.)	12.9	18.4	19.0	34.6	123.2	102.0	89.0	89.6	105.0	97.8	97.9	106.2	86.2
Metals (Others)	22.3	19.2	27.8	21.4	39.6	49.2	55.1	55.6	58.5	68.6	85.7	88.7	89.0
Transport equipment	33.3	25.2	24.5	40.5	63.9	64.6	72.1	72.1	73.5	69.9	62.2	76.3	65.4
Raw materials	207.4	156.8	207.2	210.9	182.8	214.5	198.4	195.4	177.3	162.6	203.4	245.9	274.7
Percentage to total	(32.2)	(24.2)	(33.2)	(28.3)	(18.9)	(22.4)	(17.5)	(17.1)	(13.1)	(11.7)	(9.8)	(12.5)	(14.8)
Mineral oils, fuels etc.	35.7	53.6	55.1	73.2	82.4	95.9	88.0	104.5	68.7	68.4	63.3	74.9	84.2
Cotton (raw & waste)	64.2	63.2	100.8	76.5	48.7	62.7	56.9	49.0	58.1	46.2	56.5	83.5	90.2
Dyes and colours	15.7	11.1	14.6	17.2	12.2	14.5	12.1	8.0	9.2	6.6	8.9	7.7	8.9
Chemicals	20.6	7.7	9.2	17.2	33.7	35.1	38.1	32.0	34.0	35.8	54.1	78.0	82.7
Raw jute	71.2	21.2	27.5	26.0	5.8	6.3	3.3	1.9	7.3	5.6	20.6	1.8	9.3
Consumer Goods	150.2	179.9	125.6	160.9	207.7	199.5	224.5	251.5	394.6	418.4	718.0	639.0	453.5
Percentage of total	(23.3)	(27.8)	(20.2)	(21.6)	(21.4)	(20.8)	(19.8)	(22.0)	(29.3)	(30.0)	(38.4)	(32.4)	(24.4)
Electrical goods and appra.	11.5	14.1	9.7	13.7	54.1	63.0	64.8	83.5	91.2	87.1	105.9	85.6	81.1
Drugs and medicines	7.9	7.9	9.9	11.6	12.7	11.2	9.3	8.3	8.2	8.8	17.4	17.5	17.5
Rayon textiles (yarn inch)	13.8	13.6	15.2	14.1	13.3	12.8	7.0	3.5	—	—	—	—	—
Paper etc.	15.4	10.5	10.4	14.5	11.5	15.7	13.6	11.9	13.1	13.4	21.7	17.7	18.3
Foodgrains	101.5	133.8	80.4	107.1	116.2	96.8	129.8	144.3	282.1	309.1	651.0	518.2	236.6
Others	135.9	131.0	128.2	174.1	192.0	111.3	141.9	213.4	227.1	244.3	425.2	482.2	522.8
Percentage of total	(21.1)	(20.2)	(20.6)	(23.4)	(19.8)	(11.6)	(21.5)	(18.6)	(16.8)	(17.5)	(20.5)	(24.4)	(28.1)
Total	643.9	648.0	623.3	742.4	968.9	957.6	1,131.5	1,143.6	1,342.0	1,394.0	2,078.4	1,974.3	1,861.6
Total Imports Excluding Foodgrains	542.4	514.2	542.9	635.3	852.7	860.8	1,001.7	999.3	1,066.9	1,084.9	1,427.4	1,456.1	1,525.0

Sources: (i) *Reserve Bank of India Bulletin*, March 1979, (ii) *Monthly Statistics of Foreign Trade India*.

important purchasing centre. The most striking change, however, was that the import trade with Pakistan, declined from 14.7 per cent in 1948-49 to less than 1 per cent in 1963-64 and further to nil or negligible by 1968-69 (Table XI).

IV. Commercial Policies

As stated earlier one very important feature of the Indian trade prior to 1939 was the *laissez-faire* policies of the Indian Government. Some of these policies had to be changed in the inter-war period. The Second World War, independence and planning brought further transformation in this sphere. As a result, the need for comprehensive State policies is now taken for granted. It is, therefore, worthwhile to examine the more important steps in this transformation at some length.

Policy of Protection: As a result of the experience during the First World War of the grave limitations that the existing economic structure imposed on India's capacity to adjust to varying requirements, the Government of India realized the need for adopting a State policy for promoting industrialization. An Industrial Commission was, therefore, set up in 1916 and a Fiscal Commission in 1921. The latter was asked to examine the tariff policy of the Government and to make recommendations. The commission could not produce a unanimous report; the majority report advocating discriminating protection was, however, accepted. This policy was found gravely inadequate and halting. To establish a claim for protection, an industry had generally to satisfy three conditions: (a) that the industry possessed natural advantages such as abundant raw materials, cheap power, sufficient supply of labour or a large domestic market to establish a comparative advantage; (b) that the industry was such that it could not develop at all or could not develop as rapidly as was desirable in national interests without protection; and (c) that it would eventually be able to withstand foreign competition on its own. The quantum of protection was to be decided with reference to the cost of production at home (including a resonable profit margin) and the cost price of foreign competitors, and was expected to cover this gap.

Many important export industries securely established abroad depend on imported raw materials. They also sometimes depend on migrant labour. Unskilled labour supply was generally plentiful in India, but indigenous skilled labour supplies had to be built up by the struggling industries. For a country struggling to develop, new industries had to be started, but under this triple formulae it became difficult for new industries to ask for protection since they could hardly furnish any satisfactory cost data. Furthermore, the Indian Industry could not derive much benefit from the scheme of tariff protection enunciated by the

TABLE XI

Direction of India's Foreign Trade, 1948 to 64

(Rs. in crores)

	1948-49	1949-50	1950-51	*1st Plan Average*	*2nd Plan Average*	1961-62	1962-63	1963-64
(a) Exports								
United Kingdom	103 3	118.1	139.9	163.8	168.3	161.2	162.2	161.4
	(22.5)	(23.3)	(23.3)	(26.9)	(27.0)	(23.8)	(23.9)	(21.0)
United States of America	70.0	81.5	115.4	102.2	98.7	116.7	113.8	128.7
	(15 4)	(16.1)	(19.2)	(16.8)	(15.9)	(17.2)	(16.8)	(16.8)
Germany West	—	9.5	10.9	12.8	17.2	20.7	15.2	19.0
	(—)	(1.9)	(1.8)	(2.1)	(2.8)	(3.1)	(2.2)	(2.5)
Japan	4.6	5.9	10.3	23.5	30.3	40.3	33.4	58.6
	(1.0)	(1.2)	(1.7)	(3.9)	(4.9)	(6.0)	(4.9)	(7.6)
Pakistan*	46.3	15.8	13 6	8.5	7.0	9.5	9.4	7.2
	(10.1)	(3.1)	(2.3)	(1.4)	(1.1)	(1.4)	(1.4)	(0.9)
U.S.S.R.	5.4	3.4	1.3	2.8	23.4	32.0	38.0	52.2
	(1.0)	(0.7)	(0.2)	(0.4)	(3.8)	(4.7)	(5.8)	(6.8)
Total of above 6 countries	230.3	234.3	291.4	313.5	344.9	380.4	374.0	427.1
	(50 0)	(46.3)	(48.4)	(51.5)	(55.4)	(56.2)	(55.1)	(55.7)
India's Total Exports	458.7	506.1	601.3	68.5	622.6	676.9	678.1	766.9

(*continued next page*)

TABLE XI (*continued*)

	1948-49	1949-50	1950-51	*1st Plan Average*	*2nd Plan Average*	1961-62	1962-63	1963-64
(b) Imports								
United Kingdom	153.6	155.8	135.3	160.4	202.0	194.5	185.6	168.9
	(23.9)	(24.0)	(21.7)	(21.5)	(20.8)	(20.3)	(16.4)	(14.8)
United States of America	109.8	98.3	119.2	147.8	195.6	233.5	346.8	390.2
	(17.1)	(15.2)	(19.1)	(19.9)	(20.2)	(24.4)	(30.6)	(34.1)
Germany West	—	5.9	10.6	38.0	109.5	118.2	98.7	88.7
	(—)	(0.9)	(1.7)	(5.1)	(11.3)	(12.3)	(8.7)	(7.8)
Japan	6.4	21.4	10.1	22.1	48.0	58.6	64.9	62.6
	(1.0)	(3.3)	(1.6)	(3.0)	(5.0)	(6.1)	(5.7)	(5.5)
Pakistan*	22.7	12.6	4.6	3.3	8.8	13.9	16.6	9.3
	(3.5)	(1.9)	(0.7)	(0.4)	(0.9)	(1.5)	(1.5)	(0.8)
U.S.S.R.	3.8	16.7	0.2	2.4	17.6	39.9	58.6	64.0
	(0.6)	(2.5)	(—)	(0.3)	(1.8)	(4.2)	(5.1)	(5.6)
Total of above 6 countries	296.3	310.7	280.0	373.9	581.5	658.6	771.2	783.7
	(46.0)	(47.9)	(44.9)	(50.2)	(60.0)	(68.8)	(68.1)	(68.5)
India's Total Imports	643.9	648.0	623.3	744.4	968.9	957.6	1,131.5	1,143.6

(Figures in brackets give percentages to India's total exports or imports)

*The figures shown above are exclusive of land-frontier trade between India and Pakistan for the years 1948-49 to March 1957. Trade through land-frontier with Pakistan has also declined as follows.

(Rs. in crores)

	1948-49	1949-50	1950-51	*Average 1st Plan*
Exports to Pakistan	30.4	27.5	17.0	12.0
Imports from Pakistan	85.0	31.6	39.2	32.4

Tariff Commission because the commission itself had enunciated a strange rule: "Not only in our view are there strong objections as a rule to granting tariff protection to new industries but the grant of such protection is really necessary."

Protection is only one of the necessary conditions for the industrialization of a country, but it is not a sufficient one. The creation of a general atmosphere for industrialization is necesary and an all-round Government policy which will promote and invigorate this climate can alone be helpful. The Tariff Board appointed by the Government of India to look into the question of protection was an *ad hoc* body, and, therefore, there was hardly any scope for accumulation of experience and building up of an efficient technique, or for detailed supervision of the protected industries. The protected industries were only periodically accountable, that is, at the time when they asked for continuance of protection. The Government of India interpreted the formulae of the Indian Fiscal Commission more rigidly than the Tariff Board and refused protection in some cases such as glass and the worsted section of the woollen industry even when the Board recommended these industries for protection. In spite of these defects, between 1921-1939 thirteen industries received protection and several of them like the cotton textile, iron and steel, magnesium chloride, paper, sugar and match industries justified the grant of protection to them. The industries continued to progress even during depression*. It can be claimed that the policy of discriminating protection, within its limited scope, achieved a fairly large measure of success and that on balance the direct and indirect advantages to the community of protection to these major industries offset the burden on the consumers.

The Second World War saw the setting up of many new industries unhampered by any external competition. Protection to already protected industries was continued during the war The new industries did not need any protective duties immediately, but in 1940 they were assured by the Commerce Members of the Viceroys Executive Council that if organized on business lines, they would be adequately protected in future. As soon as the war ended and a degree of outside competition was introduced, the future of many of them became uncertain. In November, 1945, the Government set up an Interim Tariff Board for two years to investigate the claims of the various war industries seeking protection or Governmental assistance. In 1947, the Board was reconstituted for a period of further three years.

The conditions laid down for protection were more liberal *viz*. that (a) the industry was established and conducted on sound business lines and that (b) (i) it was likely to develop sufficiently well, within a reasonable

***Report of the Fiscal Commission*, 1949-50, Vol. 1.

time, so as to carry on without protection or state aid, or that (ii) it was such that protection granted to it would be in national interests and the probable cost of doing so was not excessive. There were no conditions regarding local availability of raw materials, local markets or local labour except in so far as they were essential to establish a long-term comparative advantage. The Tariff Board was, by the nature of the case, appointed for a temporary period, but it was entrusted with wider powers and responsibility to ensure that the objectives of protection were fulfilled. For instance, the Board had to maintain a continuous watch over the progress of protected industries. It could recommend measures other than tariffs and make cost and price inquiries when asked by the Government. In the five years of its life, the Board conducted ninety inquiries (including five cases of internal price fixation) as against 51 conducted in the pre-war period. Also the Government announced its decisions on the Board's recommendations expeditiously, that is, generally within a period of two months instead of 3-24 months, as earlier.

With India becoming independent in August 1947, and becoming intent on securing rapid economic progress through a planned policy of industrialization, the whole concept of protection changed. It was no longer a question of considering the requests of private parties, who wanted to start or increase production in particular industries and who thought protection would be necessary and helpful. It was more a question of the nation deciding which industries it wanted to develop as a part of its programme for economic development and using the fiscal methods as one of the devices for achieving this aim.

The Second Fiscal commission set up in 1949, therefore, formulated very different criteria for the grant of protection,. The resolution setting up this commission in fact embodies this new outlook. It refers to the Industrial Policy Statement which mentions the tariff policy as being designed "to prevent unfair competition and promote the utilization of India's resources without imposing unjustifiable burden on the consumer". Further this time the whole subject of Government assistance and the obligations of the assisted or protected industries were included in the terms of reference. Industries were broadly divided into two categories — (a) those included in the Plan and (b) those not so mentioned. These two categories were treated very differently for purposes of protection. The planned industries were grouped into three main divisions — (a) defence industries and other strategic industries; (b) basic and key industries; and (c) others. If protection was necessary in the first case, it was to be given irrespective of consequences such as the cost to consumers. For the second category of industries, only the terms and conditions for grant of protection, the form and the quantum were to be laid down by the tariff authority, which was also to review from time to time whether the industries were complying with

the conditions. For the third group as well as industries outside the planning list, stringent conditions were laid down. The fundamental test prescribed was the likelihood, in light of all the facts, of the industry being able to develop its comparative advantages and eliminate disadvantages so as to carry on successfully within a resonable time without protection. In the alternative the industry asking for protection should be one to which it was desirable in national interests to grant protection or assistance, and the probable cost of such measures should not be excessive to the community having regard to direct and indirect advantages. In the case of industries included in the approved plan, the Tariff Board was entitled to consider relaxation in conditions.

For the purpose of implementing this new policy of protection, a Tariff Commission was set up under the Tariff Commission Act of 1951. It had two principal functions -- (a) to examine the case for, and recommend, protection and/or Government assistance to an industry; and (b) to recommend price levels to be fixed for the controlled commodities. The second function has come to occupy considerable importance. The Tariff Commission Act laid down the general and broad principal to be adopted in deciding tariffs, these being: (a) the cost of production in India; (b) the approximate cost of production of similar products in other producing countries, (c) the cost of importing such items; (d) representative fair selling price of the product by the domestic manufacturers; (e) the quantities of commodities to be produced or required to be produced; and (f) the likely impact of such protective measures on the rest of the economy.

In the thirteen years of its life, the Tariff Commission has done useful and arduous work. It has recommended grant of protection to 57 industries in addition to 9 that were protected earlier. Of this total of 66, 42 have been deprotected by now and in 5 cases the scope of protection has been narrowed. In 28 cases, applications for protection were rejected. Regarding the method of protection, it has gone mainly by the advice of the Indian Fiscal Commission which had expressed a preference of import duties over import quotas or subsidies, though in specific instances it recognized the need for the latter two. It stated: "We recommend that for purpose of protection to domestic industries in normal cases, quantitative restrictions should be used sparingly."

The recommendations of the Indian Fiscal Commission were, however, based on certain assumptions regarding general economic conditions and Government policy. In their scheme of things no long-term detailed Government economic policies based on industrial licensing and rigid import control seem to have been envisaged. They thought of the planning authority as only laying down a list of industrial priorities. The Tariff Commission was to accept in full the need for protecting key and basic industries and confine itself to the question of the most effi-

cient and least burdensome method of helping them, but in the case of other industries it was also to examine and fill in the details in so far as they needed Government help. Acute foreign exchange scarcity was not visualized and therefore, the implications of detailed exchange allocations were not allowed for.

The circumstances have since changed. The quantitative import controls, which have now become an integral part of the situation, have deprived their recommendations of much relevance. It is the use of import controls which now decides the presence and extent of foreign competition in the Indian market. There is a wide disparity between the landed price (including import duty) of foreign goods and the similar price of a competing home-produced good; and the disparity is as much in the case of protected industries as elsewhere. The import licences in policy materially decides the level of protection that the domestic industries will enjoy. In so far as this is not accidental, it is largely dependent on the decisions taken by the industrial licensing authorities, and on the units of production already established in the country. The domestic production of the latter is taken into account in allowing imports; they, therefore, automatically get protection. Competing foreign goods are generally allowed to the extent necessary to fill in the gap between domes tic demand and domestic supplies. The role of Tariff Commission has thus become a minor one. Its quasi-judicial nature, its procedure of public inquiries and the need to submit detailed reports which are published, all represent a very valuable safeguard which is now of little use to the nation. In very few cases, the protection recommended by them and adopted by the Government represents the quantum really enjoyed by the industry. At most it only defines the minimum margin that the industry would be entitled to, if the foreign exchange situation improved and the imports could be liberalized. Till then, industries have to struggle to get the industrial and import licences, but their difficulty is not, generally speaking, foreign or even internal competition, but scarcity of raw materials or intermediate goods. It is, therefore, not surprising that many industries do not care to face the rigorous scrutiny and public glare consequent on asking for protection; they prefer to rely on the more effective, though less permanent, import control procedures.

Dovetailing of the procedures and safeguards visualized in the Tariff Commission's mode of inquiry with the need for a long-term rigorous import control, policy will make an important advance on the present administrative and somewhat *ad hoc* decisions. It may be necessary to set up a Fiscal Commission to look into this question and recommend the methods for bringing about this combination in the best possible manner.

Export Promotion: The only long-term solution to our present trade difficulties consistent with India's membership of the international economic organizations is to secure an appreciable increase in the present level of export as import reduction to the present level of import capacity seems unlikely. Since capital aid has reached almost the maximum, no further increase in its quantum is likely. The Third Plan estimated a foreign aid of Rs. 2,200 crores, against a public sector outlay of Rs. 7,500 crores.

The actual utilization amounted to Rs. 2,423 crores in a total public sector outlay of Rs. 8,577 crores. During the three annual Plans foreign aid utilized amounted to Rs. 2,426 crores.

The Fourth Plan assumes foreign aid only marginally above the level of the Third Plan and it is expected that by 1980-81 it will be possible to eliminate dependence on foreign aid. The balance on invisible account (excluding official donations), which showed a surplus during the First and Second Plans mainly on account of interest on sterling balances., and was expected to show a deficit by the middle of the Third Five Year Plan because of heavy interest payments on past loans, became deficit even by the first year of the Third Plan. Though there was some improvement on this account during the last three years of the Third Plan, the deficit on invisible account became substantial by 1968-69 at about Rs. 32 crores. Repayment of earlier short period loans is also becoming a significant liability.

Whatever way one may look at it, the need for a rapid increase in exports is imperative. Hitherto. the increase in our export has been halting. The great increase in our national income and industrial production as well as the rapid growth of world trade have had little effect on our export effort. As a proportion of world trade, (excluding the Communist bloc) Indian exports have diminished in importance from 2.6 per cent in 1948 to 1.3 per cent in 1958; it accounted for less than 1 per cent of world trade in 1968. The exports amounted to 5.2 per cent of the national income in 1948-49 and went upto 7.3 per cent in 1951-1952; its share in national income declined to 4.4 per cent in 1962-63. and further to little over 2 per cent by 1968-69.

The main reason for this has been two-fold. World trade in India's traditional export products has been increasing at a much slower pace then total world trade; and in new industrial products, where demand is likely to grow fast, India has yet some way to go to become competitive. The new industries cannot compete with foreign products even at home; they need heavy protection. It is much more difficult for them at this stage of development to make major dent in the foreign markets. Exports, therefore, have to be pushed up. In the earlier post-war years partly because of the accumulted sterling balances, India did not realize the need for consistent. vigorous and bold export promotion policy.

As an instance of thinking in this regard, one can take the Report of the sub-committee on Trade of the National Planning Committee which stated: "Even regarding imports of machinery which are likely to be heavy in the future, we are not convinced that it will cause a great strain on our balance of payments". It, therefore, thought that "the programme of expanding our export markets is, therefore, by no means as vital for this country as for the U.K. or U.S.A.". In fact, it was even prepared to stop unremunerative exports. Shortages at home, inflation, and lack of cost and quality consciousness were allowed to have their full impact on exports; in fact, export quotas were used to reduce exports. In the last decade or more, however, there have been major changes in export policies and a significant and conscious export drive has been put into operation. The foreign exchange crisis which became almost acute by the beginning of the Third Plan lent further urgency to examine the nature of export incentives and export subsidies. These efforts at export promotion though useful did not produce all the results expected of them and the aggravating foreign exchange crisis necessitated the devaluation of the rupee in June 1966.

The export promotion measures may be broadly divided into two parts; (a) those aimed at removing the disabilities which Indian export products have to suffer compared with other competitors because of import controls and other Government policies; and (b) measures which really aim at giving specially favourable conditions for export. It may also be useful to distinguish between general export promotion measures, whose advantages are accessible to all exporters, irrespective of their export product and concessions whose effects depend on the nature of the export product. The Government of India's import control measures have imposed a grave handicap on Indian export industries, because unlike their competitors they cannot get their import requirements easily. The domestic substiutes for these may be inferior, costly or not available at all. To put the exporters in a fair position, it is necessary that they should be given the import components of their exports at world prices. Since it is often difficult to take measures which will only improve the facilities for production earmarked for exports without also changing the rest, an import licensce for a value greater than the import component of the exports may be justified. Both because of revenue and protective measures, import duties on certain capial and intermediate goods have been heavy; excise duties have also been levied on intermediate goods like steel and cement. Arrangements for rebate or drawback of such duties as enter into the costs of exports have to be made as a part of a policy to put exports on an even keel. Exporters have to face various risks of change in foreign situation, such as exchange rate changes, very different from those which may have a bearing on domestic trade.

Special credit facilities for exports are also necessary. This situation has been provided for by the setting up of Export Risk Insurance Corporation, now transformed into the Export Credit and Guarantee Corporation. Import bills have been brought within the purview of the bill market scheme in order to increase credit facilities for exports. For certain engineering and capital goods, the Refinance Corporation of India Ltd., provides credit facilities for five years through banks.

While these did not attract much attention from abroad as being usual facilities offered to exporters almost all over the world, export incentives offered prior to devaluation in June 1966 through import entitlements did create some controversy. The scheme of import entitlements (which also included supply of controlled scarce materials like steel at concessional prices) was very complicated and varied from commodity to commodity. The entitlements were in each case broken up into special sub-groups and there was a ceiling to each. so that it became difficult to translate them into financial terms. Also the import entitlements in some cases were available not only for use of the exporting firms, but could also be sold to other approved exporter. More surprisingly, they occasionally included commodities which had little to do with the production of the specific export commodity and, therefore, became financial inducements only. In general, these entitlements were confined to exports in new markets or exports of non-traditional products, and amounted to twice the import content of exports or 75 per cent of the export value, whichever was lower. The import entitlement was also, in some cases, higher at 100 per cent of the export value. By and large, the entitlements were broadly so devised as to enable the exporters to cover the losses if any on their export sales, and were regarded as a type of differential export subsidies meant to make exports competitive similar to protective duties on the import side. They were at least taken in that light by the mercantile community. Viewed, thus, they were rather cumbersome.

It had been argued that a change in the exchange rate will be preferable to the scheme of import controls and differential export incentives and other export promotion measures that we had in this country. It was also stated that the adoption of this measure will enable us to get rid of various evils of bribery, corruption, favouritism and inefficiency, and will provide a more powerful urge to the adoption of the right import substituion and export promotion activities.

Import controls fulfil a three-fold purpose: (a) protecting industries against the full blast of ruthless outside competition; (b) restricting imports of non-essential goods whose production is not permitted to be expanded domestically as a measure of consumption control; and (c) conserving foreign exchange resources are distributed among various uses according to the planning priorities so as to lead to rapid economic

development. The third purpose is so comprehensive that it automatically covers the first two. Each of these objectives demands that the Government or some public body should discriminate among the import commodities according to some priorities, and no uniform rise in price which devaluation implies would be of help. However, after the Chinese aggression the domestic costs of prouction and also prices went up sharply. The process of rising prices was further aggravated by severe drought conditions that prevailed in this country during 1965-66. As a result the rupee became too much over-valued in the international market and called for a more drastic corrective step than the existing discriminatory import controls and export subsidies. Keeping this in view, the rupee was devalued in June 1966 by 37.5 per cent in terms of gold and by as much as 57.5 per cent in terms of foreign currencies. Devaluation was only expected to provide a general corrective to the imbalance in the domestic and the foreign value of the rupee. This was not, *per se*, expected to bring about specific changes in the import and export levels of specific commodities, it was again considered necessary to take recourse to enhanced tariff barriers including export duties, coupled with, wherever necessary, export duties.

Bilateral Trading: Other significant features of India's international trade during the last two decades have been trading agreements, purchase and sale agreements on rupee payments and State trading. It has been the experience of countries faced with severe foreign exchange shortages that a system of mutual discrimination among themselves helps their foreign trade and aids economic growth and that insistence on complete multilateralism hinders their progress. Limited multilaterialism or bilateral expansionism proves a beneficial step under these conditions. Later on when economic circumstances change, the countries concerned can once more pass on to full multilateralism with all its advantages. After independence, India has more or less always found herself hindered by exchange shortages, but somehow, apart from discriminatory measures to relieve the dollar shortage, it stuck to non-discrimination with few exceptions till the mid-Second Plan. It entered into several commercial agreements with other countries, and some of them even mentioned in detail the commodities which they were interested in purchasing from and selling to each other. They were, however, only goodwill agreements. While the trading list expressed a general willingness to issue the licence it did not imply any sale or purchase commitments, nor was any mechanism like the payments agreement set up which would induce mutual trade. Since 1957, however, the Government of India has entered into a number of trade agreements. By March 1964, nearly 24 such agreements were in force of which 13 were on rupee payment basis with East European countries. The list

has since been enlarged and by now it covers about 50 countries. Also about 50 per cent of India's export trade and 35 per cent of import trade is with these countries under bilateral arrangements. Rupee payment arrangements, however, cover about one-fifth of India's exports and about one-eighth of her imports.

For many reasons, it has been found easier to work such arrangements with the U.S.S.R. and Eastern European countries. The latter have planned economies, and prefer to be sure about their external purchases and sales. They do not have much faith in the world market mechanism and do not like to pay in convertible foreign exchange. On our part, because of our exchange scarcity and non-viability of some of our exports, we preferred sure makets and linking of sales to purchase. The Communist group of countries especially the U.S.S.R. was in a position to supply developmental goods which we needed. Our trade with this group of countries expanded rapidly. This was partly a consequence of the rapid rate of eonomic growth in these countries, which because of some trade liberalization, ensued in greater increase in trade, but the institutional arangements greatly facilitated trade with them.

Table XII brings out the increase in our trade with East European countries. The import trade with these countries increased many-fold from Rs. 2.2 crores in 1952-53 to Rs. 301 crores in 1968-69 and export trade from 2.16 crores to 266.5 crores. The U.S.S.R. played a predominant role in this group. Its imports from India increased from

TABLE XII

India's Trade with East European Countries

(Rs. in lakhs)

Year	*Exports*	*Imports*	*Balance*
1952-53	216	220	— 4
1953-54	410	215	— 195
1954-55	429	808	— 379
1955-56	529	1,095	— 566
1956-57	2,089	3,217	— 1,128
1957-58	2,410	3,820	— 1,410
1958-59	3,415	3,076	+ 339
1959-60	4,903	3,398	+ 1,505
1960-61	4,924	3,762	+ 162
1961-62	6,349	8,762	—2,413
1962-63	9,145	11,011	— 1,866
1963-64	10,902	12,377	— 1,475
1964-65	14,388	14,499	— 111
1965-66	15,658	15,668	— 10
1966-67	22,567	23,014	— 477
1957-58	22,594	22,220	+ 373
1968-69	26,651	30,104	— 3,543

0.85 crores in 1952-53 to Rs. 52 crores in 1963-64 and further to Rs. 148.3 crores in 1968-69; the exports rose from only 0.24 crores to Rs. 68 crores in 1963-64 and further to Rs. 185.5 crores in 1968-69.

An analysis of the trade balance with the East European countries shows that while the trade balance has been somewhat fluctuating, it has at no time been widely adverse in relation to the level of trade after 1957-58. In 1955-56, imports from these countries were twice the exports. After 1957-58, they were in rough equality. They were a little lower in the first three years and higher for the next three. Since on capital account, India has a favourable balance with this group, the balance on payments account would make a much better showing.

The pattern of exports and imports with the communist countries is very similar to that of India's general trade with developed countries. About three-fourths of the total import bill was spent on iron and steel, capital equipment and non-ferrous metals. Chemicals, railway stores, vehicles and air crafts were the other important imports. Tea, jute manufactures, hides and skins and vegetable oils accounted for half the exports. Ores, cashew nuts, spices, footwear and oilcakes have recently acquired some importance. India has thus succeeded through this arrangement in getting highly needed developmental goods, but diversification of exports has not been significantly helped.

The behaviour of Indian foreign trade with other bilateral trade countries is almost a reminder of the fact that bilateral trade can only help under certain conditions. Trade with this group has not been at all responsive to the introduction of this device. Leaving out China (Mainland), trade with which hardly lends itself to any economic analysis, even before the emergency, Pakistan and Burma were the two most important trading partners in this category. In both these cases, foreign trade greatly shrank, as a result of the political and economic relations with Pakistan and the unsettled political and economic conditions of Burma. With Pakistan, external trade almost came to a standstill after the Pakistani aggression of 1965. U.A.R. is the only country exports to which have shown substantial expansion (Table XIII).

State Trading: Another big institutional change that has been attempted is the setting up of the State Trading Corporation (S.T.C.) in 1956. Negotiation and fulfilment of long-term export agreements affecting a substantial part of domestic production can only be completed and executed by large producers' or traders' associations or organizations. If it is thought inadvisable to promote them or entrust them with this work, the only practicable alternative is the establishment of a trading corporation by the State which can handle imports or exports in bulk. New export lines or additional exports of traditional products on a substantial scale demand the creation of new production and transport

TABLE XIII

India's Trade With Underdeveloped Bilateral Partner Countries 1952-53 to 1968-69

(Rs. in Lakhs)

	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61
Underdeveloped Bilateral Countries*									
Exports to	7,149	4,690	4,994	5,351	4,626	4,211	3,490	5,199	4,861
	(12.2)	(8.7)	(8.3)	(8.4)	(7.3)	(7.1)	(6.1)	(8.4)	(7.7)
Imports from	8,447	7,401	10,766	7,423	5,028	4,914	7,342	5,586	5,062
	(13.4)	(12.5)	(15.7)	(9.8)	(4.6)	(3.9)	(7.1)	(6.4)	(5.3)
Pakistan exports to	3,111	801	975	830	792	713	629	720	951
Imports from	2,188	1,930	1,958	2,711	1,576	1,166	602	939	1,306
Burma Exports to	2,219	2,086	1,606	1,239	1,124	1,098	779	1,258	652
Imports from	2,647	1,755	5,736	958	940	1,353	4,293	1,572	1,239
U.A.R. Exports to	568	347	809	946	1,139	1,059	823	1,036	1,341
Imports from	1,512	2,765	1,969	2,310	832	812	670	1,377	1,223
Underdeveloped Bilateral Countries*		1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69
Exports to		4,444	4,267	4,055	4,375	4,906	4,828	5,221	7,078
		(6.6)	(6.3)	(5.3)	(5.4)	(6.1)	(4.2)	(4.4)	(5.2)
Imports from		4,499	4,537	4,230	8,164	7,611	9,722	8,081	10,380
		(4.7)	(4.0)	(3.7)	(6.1)	(5.5)	(4.7)	(4.1)	(5.6)
Pakistan Exports to		945	938	719	970	488	1	1	1
Imports from		1,386	1,665	936	1,657	566	136	211	1
Burma Exports to		524	501	637	629	358	372	382	1,194
Imports from		1,124	910	899	1,030	938	4,023	924	1,651
U.A.R. Exports to		1,286	1,301	1,257	1,424	2,706	2,499	2,153	2,182
Imports from		1,204	997	1,526	1,735	1,996	2,030	2,690	4,141

(Figures in brackets indicate percentage to India's total exports and imports)

*The group includes Pakistan, Burma, Afghanistan, Indonesia, China, U.A.R., Iran, Chile and North-Vietnam.

facilities, new credit arrangements, vigorous foreign propaganda and publicity, establishment of new market channels, study of foreign tastes and willingness and capacity to bear short-term losses. It is only a body with large resources acting in close collaboration with the Government that can fulfil these requirements. For promotional activities in export products, produced on a small scale also, the State Trading Corporation is also well-suited; it can take a long-term view, extend the necessery facilities to produces, and help in quality and schedule being properly observed. The S.T.C. can thus be effectively used either to mop up the uncertain fluctuating gap between the demand and supply price of scarce imports, or to arrange for their controlled distribution. By its purchase and sale policies, it can also play an important role in stabilizing prices of export and import products. Its commanding position enables it to give a right and vigorous lead to private traders, and act as a catalytic agent.

There is, however, an important limitation to the activities of the S.T.C. The world markets are volatile, and need much closer study and quicker adjustment than internal trade or production. A very keen eye on the world market changes has to be developed in order to suceed. The S.T.C. with its bureaucratic methods may find it difficult to operate particularly in areas where standardization has not proceeded far or where bulk handling is not possible. On the other hand, in staples and standardized goods the S.T.C. can make a much better success, especially if it can evoke the co-operation and willing support of private trade. The S.T.C. has made good progress over the last few years. Apart from significantly increasing its turnover it has also strived for and succeeded in diversifying exports by finding out new export commodities and market. For example, it has introduced shoes, sports goods, tea, coffee, woollen goods, and razor blades to communist countries and marine salt to Japan and Sri Lanka.

In order to make its operations more effective, in October 1963 a separate corporation *viz*, The Mineral and Metal Trading Corporation was set up to handle trade in minerals and metals particularly ores.

The S.T.C. has also entered into barter and linking arrangements as special instruments of export promotion. The link arrangements are made with selected firms of standing having connections with the foreign country concerned to establish suitable markets for Indian goods. These have also proved a success.

Barter deals are resorted to for disposal of commodities with no ready market. The device can enable exports of commodities which no financial incentive can get across. It is not always necessary to sell these commodities at less than world prices. Sometimes the anxiety of the other party to dispose of some goods which we need can be used to obtain world prices for them. In entering into such transactions, due

care has to be taken to ensure that the goods so exported are additional exports which could not have been sold in the normal way; that the commodities imported in turn are really needed according to our priorities, and that the commodity terms secured are ascertainable and not unfair. Occasionally, loading of imports may also be neecessary on tactical grounds, but it has to be done very selectively. If these safeguards are observed, the deals which the S.T.C. may conclude will add to our export promotion effort. Through such transactions, S.T.C. has often succeeded in selling manganese against steel, or sugar against fertilizers.

The S.T.C. has also helped private manufacturers in locating new markets and getting orders when their unaided efforts were of no avail. For instance, it helped the salt manufacturers in selling their products. Further, under the Export Aid to Small Industries Schemes the S.T.C. has succeeded in export promotion through proper assistance in securing the quality and schedule of articles offered for export by giving raw material and other facilities. The S.T.C., under direction from the Government of India, also operates buffer-stock schemes in jute, seed-lac and lemon-grass oil which have proved beneficial to the growers.

The S.T.C. has played a relatively more important role in imports than in exports. The goods handled vary widely from machinery to chemical goods, fertilizers and consumption good like cloves and betel-nuts. Its profit margin on these items has varied from ½ to 10 per cent depending on the nature of the commodity, the possibility of sale at a profit and the price of the domestically produced competing goods. For about 75 per cent of its turnover the maximum margin is 10 per cent, but scarce items such as camphor are sold at a higher margin. The profits are used to finance export losses.

The S.T.C. must be judged not by the size of the trade that it handles or entirely by what happens in this sector. Policy decisions can immediately increase or decrease its turnover. It is also expected to help in the promotion of private foreign trade. Its results must, therefore, be judged by its contribution to India's export expansion or prevention of its export decline. However, since changes in India's export trade are the result of several complex factor, it becomes difficult to evaluate the S.T.C.'s role in this direction.

The S.T.C. has rendered distinct services in some spheres of export trade. The most important, probably, is the trade with the East European countries. The expansion of iron ore exports also owes considerably to its efforts and foresight. This area of trade has since been transferred to the M.M.T.C. which in turn has drawn up ambitious plans for iron ore and mineral exports. While the expanding demand for iron ore and the comparative advantage in mining that India has are the basic favourable factors, the long-term sale agreements and alternative

transport arrangements that the M.M.T.C. has made to fulfil its commitments, have enabled these factors to be efficiently exploited. Manganese ore is the reverse example, where the comparative advantageous situation has been working against India, and the M.M.T.C. through link and barter agreements, has tried to minimize its adverse impact.

S.T.C.'s efforts in other directions through the 'Export Aid to Small Industries' or the Handloom Export Organization are yet to make a sizeable impact. From the view-point of affecting the export trade as a whole, it is still not in a very fortunate position as directly and indirectly it as yet handles only a small proportion of the total export trade. However, after gaining some more experience, it should be able to expand its activities in a big way and produce a sizeable effect on the size and complexion of India's exports.

General Agreement on Tariffs and Trade (G.A.T.T): As a part of the network of laying down codes of conduct regulating international economic relations and facilities for mutltilateral trade, an International Trade Charter was drawn up and signed by fifty-four nations in 1948. The signature only signified agreement regarding what transpired. Ratification by Governments concerned was to follow, but the necessary majority could not be mustered, so that the Havana Charter with its elaborate provisions regarding proper trade policies could not come into force. Anticipating the delay that the preparation and acceptance of an elaborate international Trade Charter was likely to mean, the Preparatory Committee of the U.N. Conference on Trade and Employment held in 1946, decided that at its second session in Geneva in 1947, members of the Preparatory Committee should negotiate for a substantial mutual reduction of tariffs and other trade barriers as contemplated under Article 17 of the proposed charter. The concessions received or granted were extended to all the member nations almost automatically, but provisions had to be made to ensure that no member country continued to enjoy the advantage of the extension of such reductions without offering equivalent concessions. The principle of mutuality and reciprocity was insisted upon. It was thus hoped to secure the advantages of the unconditional "Most-Favoured Nation" (M.F.N.) clause without any of its conspicuous disadvantages by combining some elements of the conditional clause. Agreements to reduce duties or bind them could be defeated in practice with other supplementary trade policies. The General Agreement on Tariffs and Trade, therefore, also contained the principle of M.F.N. treatment and other general commercial provisions similar to those of the Havana Charter. At the Geneva, Annecy and other subsequent negotiations India took enthusiastic part and agreed to bind a number of general duties and reduce many revenue duties.

Since agreements become binding for a long period, and it is difficult

to get release from their enforcement afterwards without undergoing complicated procedures and the threat of arousing ill will, nations like India with their economies in transition have to be quite careful in making such commitments. It has to visualize its revenue and protective needs a few years ahead and see that the bindings will not conflict with these. *Due to many fortunate circumstances, India has had no occasion* of this type.

There are two other requirements of the G.A.T.T. which can come in some conflict with the course of action needed for Indian economic development—the G.A.T.T. use of quotas, and its prescriptions on trade preferences and discrimination. Like its financial counterpart, the International Monetary Fund (I.M.F.), the G.A.T.T. is averse to the use of quantitative controls, which do not work in conformity with the price mechanism. Quotas for protective purposes are allowed only under special circumstances, *e.g.*, when it can be established that there is no other method of protecting the industry more consistent with the agreement. Strictly interpreted this makes resort to protective quotas exceptional, and in modern practice these happen to be the most effective way of sheltering domestic industry. India, having an adverse balance of payments, can resort to import quotas on balance of payment grounds. These have a protective effect and can be so administered as to optimize it. Quotas have to be administered in a non-discriminatory way, but bilateral arrangements are repermitted to the extent allowed by the I.M.F. The causes of the adverse balance of payments and alternative remedies have to be discussed periodically with the G.A.T.T., but development policies cannot be called into question on the ground that they lead to an adverse balance. Hitherto, at the G.A.T.T. consultations on these topics, tables have been turned on the developed countries.

Preferential duties, however, are likely to offend. G.A.T.T. rules allow the continuance of factors such as Commonwealth preferences, only as a legacy from the past and insist on the margins of preference being not further widened. An extension of preferences is only allowed under very special circumstances and with the consent of the organization. These include cases where the area of international trade is small but where the benefits accruing to the country resorting to it. substantially outweigh injuries to other parties.

A more vital question is, how far the G.A.T.T. provisions help underdeveloped countries like India in creating appropriate trade conditions for development. Since Article I, defining the objectives, specially mentions development, this is not an unfair test. Development is a many-sided process, and international economic relations can play only a limited role in bringing about this internal process of transfomration and structural change. Even in this limited part, aid can play the lion's role and trade can only help afterwards. However, the complaint

hitherto, has been that trade is not pulling its weight at all, in aiding the process of economic development of the under-developed countries. In the fifties, while the exports of the developed countries have been growing at the very satisfactory rate of 6.2 per cent per annum; the exports of the under-developed countries have only increased at 3.6 per cent. In spite of severe controls in many under-developed countries, their imports have increased much faster. The result has been that foreign reserves have been fast drawn upon in spite of liberal foreign aid, and developmental programmes have been greatly hampered. As any considerable step-up of foreign aid is difficult and the problem of repayment has to be faced, a programme which will greatly increase exports from under-developed countries is called for. The situation has somewhat improved during the sixties when the rate of growth of exports from the under-developed countries increased to 6.1 per cent per annum, but even at this level the growth rate in exports is significantly behind that observed for the industrialized countries at 8.8 per cent per annum.

When both the Havana Charter and the G.A.T.T. instruments were drawn, the precise needs of development in the sphere of trade policies were not known. They, therefore, provided for such needs of developing countries on the trade front as were then visualized by the developed countries, and embodied in the then prevalent beliefs in the abolition or relaxation of trade restrictions with a few proved exceptions. The whole philosophy of the G.A.T.T. was based on the concept of equality and reciprocity. At negotiation rounds, the member countries were expected to offer one another equivalent tariff concessions. This presumed that countries were starting from a position of balance, and their tariff needs were more or less the same. The developing countries, experiencing a persistent pressure on their balance-of-payments and the need of protective tariffs were in no position to give any valuable tariff concessions. Nor in fact was this essential because their imports from developed countries were fast increasing, the only brake being their foreign receipts. If the developed countries could help augment them, they would automatically find an increase in their exports in this part of the world. At the insistence of India and other under-developed countries, the obstacles to increase in exports from the under-developed countries were investigated, and it was found that there were several trade practices such as tariffs, quotas, agricultural protectionism, internal taxes, and administrative regulations, in the developed countries which hindered the increase of exports from the developing countries. It was not possible to measure the restrictive effects of these measures but it was certain that their prevalence was acting as an inhibiting factor on the export promotion efforts of the developing countries. The latter had also a fear, based largely on the experience of the treatment of cotton

textile exports, that if they did succeed in pushing the exports of processed and manufactured products, the chances were that new restrictions might be levied on them. Textiles presented a special problem as they were a decling industry in developed countries. The G.A.T.T. had tried to deal with this problem through an International Cotton Textile Conference in 1961, where a one-year agreement for voluntary restriction of cotton textile exports was arrived at. In 1962, a five-year long-term textile agreement providing for liberalization was reached. For other commodities the developed countries had in 1963 agreed to a programme of action involving no new tariff or non-tariff restrictions, reducing duties on processed or semi-processed products by 50 per cent in three years, and eliminating inconsistent restrictions within a year. But nothing appreciable immediately followed.

CHAPTER XI

BANKING AND THE MONEY MARKET

I Banking Before Independence

The origin of money lending in India has been traced back to the Vedic period c. 2000 B.C. to 1400 B.C. More specific references have been found in the literature pertaining to the 5th century A.D. The financial organization was rudimentary and the operations consisted primarily of lending, without its modern counterpart, acceptance of deposits. The use of *hundi* as an instrument of credit made its appearance in the 12th century A.D. and laid the foundation of what later came to be called indigenous banking. By the time the British traders came to India in the 17th century, money lending and indigenous banking had been fairly well established. They formed the core of the financial market of those times.

Money lending was most often combined with other activities like trading, zamindari, etc. The methods of business varied widely. Normally loans were given on trust; sometimes they were secured against promissory notes, mortgage of land, houses, ornaments or cattle. In rural areas, loans were usually repayable at harvest time. The rate of interest was exorbitant. The indigenous bankers adopted more sophisticated business practices and were located mainly in towns and cities. The business was largely handled by *Shroffs, Chettiars, Multanis, Marwaris*, etc.

Modern banking business was initiated by British Agency houses set up in Calcutta and Bombay. Cooke has mentioned that the first bank called Bank of Hindustan was established in 1770. Later researchers have, however, doubted the validity of this statement. The development of banks was extremely slow and was confined largely to ports and important cities. The banks mainly financed trade and Government.

A major breakthrough in banking came with the establishment of the Presidency Banks in Calcutta, Bombay and Madras. The Bank of Calcutta was set up in 1806 principally to give support to Treasury Bills which were subject to acute seasonal fluctuations. Government held one-fifth of the share capital of the bank which was empowered (in 1823) to issue notes also. Subsequently (in 1840 and 1843) the Bank of Bombay and the Bank of Madras were established with minority Government participation. The Bank of Bombay went into liquidation in 1868; its place was taken by a new bank in the same

year with the same name. In 1862, the banks were deprived of the power to issue notes and in 1876 Government withdrew all its interest in banking business. The three banks were amalgamated into a single bank called the Imperial Bank of India. At the time of amalgamation in 1921, the banks had 59 branches and Rs. 7.2 crores of paid-up capital and reserves. The Imperial Bank was nominated banker to Government and it undertook some of the functions of a Central Bank. Currency management, however, remained with Government.

The development of joint stock banks was accelerated after Act VII of 1860 which introduced the principle of limited liability. However, banking was not a specialized business and most banks combined other interests as well. As such, nearly a half of the joint stock banks which came into being in 1833-60, failed. The business climate was vitiated by the cotton crisis; and in the subsequent five years, only one bank, *viz.*, the Allahabad Bank, was established. Not much headway was made in the last quarter of the 19th century. By 1900, there were only 20 commercial banks, including 8 exchange banks, with deposits of about Rs. 34 crores. The other savings institution which registered some progress was the Post-Office Saving Bank.

The pace of banking dramatically changed after 1906. In the next seven years, nine new large banks, with paid-up capital of over Rs. 5 lakhs each, were set up. These included the Bank of India, the Indian Bank, the Punjab and Sind Bank, the Central Bank of India, the Bank of Baroda and the Bank of Mysore. In 1912, the Indian Life Assurance Companies Act was passed. This introduced some rationale in insurance business but it was replaced by more comprehensive legislation in 1939.

Modern industry which had taken root in 1870 was beginning to assume definite shape after the Swadeshi movement. There were 5,189 joint stock companies in 1921-22 with a total paid-up capital of Rs. 231 crores. Jute, cotton, iron and steel, coal and tea were the major lines of activity. Industry was emerging as a potential client of the banking system. The growth of joint stock companies also necessitated a market for buying and selling shares. The first stock exchange was established in Bombay in 1887. This was followed by the setting up of stock exchanges in Ahmadabad, Calcutta and Madras.

The years 1913-24 were critical and about 161 banks with a paid-up capital of Rs. 6.75 crores went into liquidation. By 1925, there were 93 commercial banks, including 18 exchange banks, with deposits of about Rs. 212 crores. In the next five years, their number had increased to 107 and their deposits to Rs. 220 crores.

Banking business was limited in scope. Only 400 out of 2,500 towns, were served by joint stock banks and their branches. Indigenous banking and money lending still dominated the financial market. These survived even in places having banking facilities possibly because of their flexibility in business practices. To some extent, they also performed complementary functions which made them, in a limited way, a hand-maid to the banking system. Thus, the Report of the Indian Central Banking Inquiry Committee pointed out: "They performed the functions analogous to those of big brokers of the London Money Market". Available statistics indicate that there were about 100,000 money lenders and indigenous bankers in Bihar and Orissa and 20,000 in Bombay. In Bengal, the number of money lenders was 45,000 and in the Punjab 55,000.

Insurance was also making its way as a savings institution. The number of life insurance companies—Indian and foreign—went up from 72 in 1913 to 240 in 1930, with the business in force amounting to Rs. 88.66 crores.

The monetary and credit situation was not subject to unified control. As the Hilton Commission remarked in 1926: "The Government controls the currency; the credit situation is controlled as far as it is controlled at all, by the Imperial Bank. With divided control, there is likelihood of divided counsels and failure to co-ordinate . . . The only certain way to secure co-ordination is to concentrate controls in one hand. In other countries, the single controlling hand is that of a Central Bank". This recommendation was acted upon. In 1927, an attempt was made to create a Central bank called the Reserve Bank of India. The first attempt proved abortive. After considerable political debate, the Reserve Bank of India Act was passed in 1934. This was a major step in imparting a degree of cohesiveness to the monetary and credit situation, in imposing some financial discipline on scheduled banks and promoting better management of money and credit.

On the eve of the Second World War there were 679 commercial banks including 19 exchange banks. Their total deposits were Rs. 277 crores.

The war years gave a tremendous stimulus to the growth of banking. Excluding Burma, the deposits of commercial banks stepped up to Rs. 915 crores by 1944. By the time the country achieved independence in 1947, India had a fairly well developed and closely knit banking system with 648 banks having 4,819 branch offices. The deposits amounted to Rs. 1,164 crores, about 13 per cent of the national income. About 42 per cent of the deposits were invested in Government securities and 47 per cent used to give advances or

discount bills. Trade was the major client accounting for nearly a half of the total advances. Another one-third was taken up by industry.

The division of the monetary system into organized and unorganized sectors continued, although their shares had substantially altered. The organized sector comprising joint stock banks—scheduled and non-scheduled—with the Reserve Bank of India at the apex, had grown in size both absolutely and relatively. The unorganized sector was less important. It survived because first, banking was not widespread; secondly, there was some spill over of demand for funds; and thirdly, indigenous banking provided more personalized service. The co-operative sector had emerged as a source of finance in rural areas but hardly met even 3 per cent of the financial needs of agriculturists. Commercial banks had not entered the rural sector. For the bulk of their requirements the agriculturists depended on the traditional money lenders. The development of industry had given a spurt to trading in shares and organized stock exchanges had been put up in all industrial cities. There were 158 life insurance companies with Rs. 612 crores business in force. Thus the whole financial organization had, by the time the country became independent, developed sufficiently and provided the necessary infra-structure for the growth of the economy in the post-independence years.

II. History of Banking Legislation

Banking companies until 1936 were governed like other companies by the Indian Companies Act 1913. This Act, no doubt, made a distinction between banking companies and other companies but only in minor respects. For example, Section 4 of the Indian Companies Act 1913, prohibited a partnership from carrying on banking business unless it was registered as a company. Banks were required to submit returns every six months and were liable to inspection by the local Government. With the growth of the banking system and the periodical crisis to which it was exposed, it was realized that banking business was on a different footing and had to be regulated by a separate law.

It was also felt that the credit system, as in most other countries, should be brought under the control and supervision of a Central bank. The issue was examined by J. M. Keynes and Sir Earnest Cable in 1913. A specific proposal for setting up a Central bank called the Reserve Bank of India, was made by the Hilton Young Commission in 1926. After a protracted controversy and debate, the Reserve Bank of India Act was passed in 1934. The bank was set up as a share-

holders' bank with the object of "securing monetary stability in British-India and generally to operate the currency and credit system of the country to its advantage". Government control was limited to the appointment of the Governor and two Deputy Governors after considering the recommendations of the Central Board.

The specific functions of the Reserve Bank of India (R.B.I.) included issue of notes, providing banking facilities to Government and other banks, and maintaining the exchange ratio. The bank was given the exclusive right to issue bank notes. It had two Departments, *viz.*, the Issue Department and the Banking Department. Two-fifths of the assets of the Issue Department were to consist of gold coins, bullion and sterling securities. As banker to Government, the bank had to accept moneys or make payments on behalf of Government and to manage the Public Debt. Government in turn were obliged to deposit, free of interest, all their cash balances with the bank. An equally important role of the bank was to regulate the banking system in its capacity as banker's bank. Scheduled banks (and later State co-operative banks) were required to maintain with the Reserve Bank a cash balance equal to not less than 5 per cent of their demand liabilities and 2 per cent of their time liabilities in India. In return, the Reserve Bank was to provide accommodation to scheduled banks in the form of rediscounts and advances.

The relations of the Reserve Bank with the money market were to be mainly conducted through scheduled banks. The main instruments of control were the bank rate and open market operations. Since its inception, the Reserve Bank was also entrusted with three special obligations, viz.; to provide credit to agriculture, develop the bill market and to bring the unorganized sector within its ambit.

The Reserve Bank of India was a stabilizing and unifying force. But joint stock banks were not themselves subject to the type of regulation necessitated by the nature of business. The issue had been examined in 1929-31 by the Central Banking Inquiry Committee which found that the Indian Companies Act was inadequate and recommended separate banking legislation. In 1936, the Indian Companies Act was amended by the addition of a separate chapter containing provisions pertaining to banking companies. In terms of this amendment, a bank was defined as "a company which carries on its principal business the accepting of deposits of money on current account or otherwise subject to withdrawal by cheque, draft of order". This definition was soon found inadequate and had to be modified. Banks were prohibited from carrying on any other business, could not be managed by managing agents other than banking companies, and had to have a minimum capital of Rs. 50,000.

The 1936 Amendment to the Indian Companies Act was a stop-gap arrangement. A full-fledged banking law was on the anvil. The failure of the Travancore National and the Quilon Bank in 1938 hastened the pace of legislation and the Central Board of the Reserve Bank submitted proposals to Government in November 1939, in the form of a draft bill. Although consideration of the bill was postponed, some of its provisions were enacted in 1942 and 1944. After the Second World War, the bill was revised and finally enacted in the form of the Banking Companies Act in February 1949.

The Act defined the business to be carried on by banks, required banks to dispose of non-banking assets, prohibited employment of managing agents, specified minimum capital, debarred common directorships between banking companies, fixed cash reserves, restricted the nature of subsidiary companies, imposed limitations on loans to directors of firms or private companies in which directors were interested, empowered the Reserve Bank to control advances of banking companies in respect of purpose, margins or rate of interest, necessitated a system of licensing of banks, compelled banks to invest 20 per cent of their time and demand liabilities in liquid assets, made it obligatory on the part of the banks to submit information to the Reserve Bank, etc. The legislation was comprehensive and introduced considerable discipline in banking operations.

The principal object behind legislation since independence was to give a greater degree of protection to the public, exercise better control on the financial organization and management and ensure a socially desirable distribution of credit. The Rural Banking Inquiry Committee had drawn attention (in 1950) to the need for extending banking facilities to rural and semi-urban areas. On the recommendation of the All India Rural Credit Survey Committee, the Imperial Bank was nationalized in 1955 and renamed State Bank of India (S.B.I.) The State Bank was required to establish not less than 400 additional branches in 5 years. While it was to continue to undertake commercial banking functions, it was specifically desired to contribute to rural credit and provide financial assistance to small scale industries. Also, the Reserve Bank of India Act was modified to set up the National Agricultural Credit (Long-term Operations) Fund and the National Agricultural Credit (Stabilization) Fund. The object was to enable the Reserve Bank to strengthen the co-operative structure and provide larger funds for rural development. An equally important measure was the nationalization of life insurance companies and the setting up of the Life Insurance Corporation of India in 1956.

The Reserve Bank of India Act 1934 had imposed limitations on the asset pattern of its Issue Department. This 'relic of the past' was done away with by an amendment to the Act in 1956 and later in 1957. In terms of these amendments, the Issue Department was required to hold only a minimum amount of Rs. 200 crores of foreign exchange assets, Rs. 115 crores of which were to be in gold. Money supply thus became completely a matter of 'fiat'.

The Reserve Bank control on credit was further strengthened in 1956. The scheduled banks were required to keep with the Reserve Bank 5 per cent of their demand and 2 per cent of their time liabilities. These ratios were made variable between 5 per cent and 20 per cent in respect of demand and 2 per cent and 8 per cent in respect of time deposits. This measure added another dimension to the credit policy of the Reserve Bank. The Banking Companies Act of 1949 was also amended to give the Reserve Bank additional supervisory powers. Sections 12 and 16 were amended to prevent misuse of voting rights through concentration of shareholding and Sections 35 and 36 to enable the Reserve Bank to issue directives to banks in matters of policy, approve the appointment of managing directors managers and chief executive officers, and appoint observers on the Board of Directors. Further amendment in 1959 necessitated Reserve Bank approval to appointment of Directors also.

The Reserve Bank of India was also emerging as a promotional and developmental agency. It had contributed to the share capital of the Industrial Finance Corporation of India (I.F.C.). It was providing finance to agriculture. In 1957, the Reserve Bank of India Act was amended to enable the bank to contribute to the share capital of any financial institution. This was done in anticipation of the bank's role in the Refinance Corporation for Industry which was set up in 1958. The State Bank of India Act was amended to enable it to give medium-term credit. In 1960, the Reserve Bank was enable to give credit facilities to State Finance Corporations. The Reserve Bank also subscribed to the capital of the Industrial Development Bank of India (I.D.B.I.) which was established in 1964. Similarly, the State Bank of India (Subsidiary Banks) Act 1959 permitted the State Bank to constitute 8 subsidiary banks.*

The failure of the Lakshmi Bank and the Palai Central Bank in 1960 revealed many weaknesses of small and medium banks and pressed the need for statutory powers to cope with the problem. Accordingly, the Reserve Bank was empowered compulsorily to amal-

*The Bank of Bikaner; The Bank of Indore, The Bank of Jaipur; The Bank of Mysore; The Bank of Patiala; The Bank of Travancore, The State Bank of Hyderabad and The State Bank of Saurashtra.

gamate weak banks with the strong, with the approval of the Government. The Reserve Bank was also allowed to declare a period of moratorium to facilitate such mergers and amalgamations. At the same time, to secure the interest of the public, particularly the small depositors, a Deposit Insurance Scheme was instituted. Additional measures were taken in 1962. The minimum capital of any new banking company was raised to Rs. 5 lakhs. The legal provisions in respect of liquidity of banks were altered in terms of which the minimum ratio of liquid assets to total deposits was raised from 20 to 28 per cent, comprising 3 per cent statutory reserves and 25 per cent other liquid reserves. Consequently, the Reserve Bank of India Act was also amended to require scheduled banks to maintain with the Reserve Bank an average daily balance of 3 per cent of total deposits as against 5 per cent of demand and 2 per cent of time deposits. The Reserve Bank was also empowered to vary the cash ratio from 3 per cent to 15 per cent. Thus, maximum liquidity ratio that could be statutorily imposed varied from 28 per cent to 40 per cent. The focus in credit policy gradually shifted from control of cash reserves to control of liquidity.

Supervision and control by the Reserve Bank were further strengthened in 1963 through the Banking Law (Miscellaneous Provisions) Act. The maximum voting rights of individual shareholders of banking companies were reduced from 5 per cent to 1 per cent of the total, the maximum term of office of persons managing the affairs of the bank was limited to 5 years, unsecured loans to any company in which the Chairman was interested were prohibited, the Reserve Bank was enabled to issue directions to banks regarding the maximum amount of advances or guarantees that could be given on behalf of any borrower, and was empowered to remove from office any person associated with the working of a bank, if considered desirable.

Thus, by 1963, the Reserve Bank had assumed substantial control over the working, operations and management of banking companies. But control on the credit system as such was only partial. A number of non-banking companies were also carrying on quasi-banking business. The Banking Law (Application to Co-operative Societies) Act, 1965 brought State co-operative banks within the ambit of the Reserve Bank's statutory control. The Reserve Bank also issued in 1965, and later in 1966, two directives under the Banking Laws (Miscellaneous Provisions) Act 1963 to non-banking financial companies and non-banking non-financial companies accepting deposits from the public. The directives prohibited companies from accepting deposits payable on demand and limited the period

of deposits to not less than 12 months in the case of non-financial companies and to 6 months in the case of hire-purchase companies. The latter were required to hold a certain percentage of liquid assets. The new directive issued in October 1966, restricted the amount of deposits accepted by non-banking non-financial companies, other than housing finance and hire-purchase finance companies, to 25 per cent of paid up capital and free reserves. The definition of deposits was widened in 1971 to include unsecured loans also.

The banking system had progressed fairly rapidly in the first two decades after independence. But there were some lacunae, mainly historical in nature, which failed to make the banking system conform to current social needs. There was considerable public debate which drew attention to the skewed pattern of distribution of bank credit in favour of industry, and that too, large houses. On the other hand, priority sectors like agriculture, small scale industries, exports, etc., were neglected. To overcome these deficiencies, Government adopted a scheme of social control over banks. This led to the setting up of a high level body called the National Credit Council in December 1967 and the enactment of the Banking Laws (Amendment) Act 1968. The short-lived Council was expected periodically to assess the demand for bank credit from various sectors, determine priorities for grant of loans and advances and co-ordinate lending and investment policies. The 1968 Amending Act provided for re-constitution of the Boards of Directors of banks so that more than a half of the members represented specialized fields like accountancy, agriculture, rural economy, small scale industries, co-operation, banking, economics, finance and law. At least two of the Directors were to represent agriculture, rural economy, co-operation and small scale industries. These directors were not to have substantial interest in any large or medium industrial or trading concern. A professional banker was required to be full-time Chairman and his appointment was subject to Reserve Bank's approval. Loans to directors were prohibited. Appointment of auditors needed the Reserve Bank's concurrence. The Reserve Bank was empowered to issue directions not only in the interest of depositors or proper management but also banking policy. Government was also enabled to acquire the business of any bank if it failed to comply with any directions.

The Banking Laws (Amendment) Act 1968 came into force from February 1, 1969 although banks with deposits of over Rs. 10 crores were persuaded to comply with the provisions of the bill even earlier. Simultaneously, Government set up a Banking Commission to examine the whole problem of banking organization.*

*The Commission submitted its Report in 1972.

The scheme of social control was on trial hardly for six months when Government announced the nationalization of 14 major Indian banks with effect from July 19, 1968.* The objectives of nationalization as stated in the preamble to the Banking Companies (Acquisition and Transfer of Undertaking) Act 1970 were "to control the heights of the economy and to meet progressively and serve the needs of development of the economy in conformity with national policy and objectives."

Banking legislation through the years unfolds a story of increasing Government control on banks ending ultimately in substantial ownership. The initial measures were aimed mainly at protecting the interest of the depositors. This was followed by measures specifically designed to control the efficacy of the credit system; the final act of nationalization accepts banking as essential public institution which can be best operated through public ownership.

III. The Reserve Bank of India

The Reserve Bank is the centre-piece of the money market. It issues notes, buys and sells Government securities, regulates the volume, direction and cost of credit, manages foreign exchange and supports institutions financing agriculture and industry. Within the immediate periphery of the Reserve Bank are the scheduled banks and State co-operative banks. Non-scheduled banks, which are a dying species, and the non-banking financial and non-banking non-financial companies accepting deposits from the public also fall within the ambit of the Reserve Bank's control although its extent and rigour is considerably less. The operations of the money lenders and indigenous bankers which are now relatively small are, however, largely outside the pale of the Reserve Bank policy.

The Reserve Bank has the monopoly of note issue. Small coins and one rupee notes which account for less than 9 per cent of the total currency in circulation, are, however, issued by Government. But the Reserve Bank undertakes their distribution as Government agent. Money supply in India is exposed to seasonal fluctuations, rising in the busy season, *i.e.* November-April and falling in the slack season *i.e.* May-October. At the end of April 1972, currency put into circulation by the Reserve Bank was Rs. 4,705 crores.

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* These banks which had deposits of over Rs. 50 crores each include: The Central Bank of India Limited, The Bank of India Limited, The Punjab National Bank Limited, The Bank of Baroda Limited, The United Commercial Bank Limited, The Canara Bank Limited, The United Bank of India Limited, The Dena Bank Limited, The Syndicate Bank Limited, The Union Bank of India Limited, The Allahabad Bank Limited, The Indian Bank Limited, The Bank of Maharashtra Limited, and The Indian Overseas Bank Limited.

The assets and liabilities of the Issue Department at the end of April 1972 were as follows:

TABLE I

RESERVE BANK OF INDIA

Issue Department

(End April 1972)

Liabilities	*Rs. crores*	*Assets*	*Rs. crores*
Notes in		Gold coin and bullion	183
circulation	4,749	Foreign securities	222
Notes held in		Rupee coin	34
Banking Deptt.	54	Government of India rupee securities	4,364
	4,803		4,803

The Reserve Bank has offices of the Issue Department at Bangalore, Bombay, Calcutta, Hyderabad, Kanpur, Madras, Nagpur, New Delhi, Patna and Gauhati. Besides, the bank maintains currency chests with branches of the State Bank and its subsidiaries and with Government Treasuries. At the end of September 1969, these numbered 1,968.

Being banker to Government, the Reserve Bank receives and makes payment on behalf of Government, holds the cash balances of Government, manages the public debt and undertakes remittances. The Central Government usually floats securities of long maturity (over 15 years) and short maturity (less than 5 years), while the State Governments float medium-term securities (about 12 years). Before the loans are floated, which is normally in May-July, the Reserve Bank grooms the market to enable it to take up the largest amount of loans. Treasury bills are sold on tap throughout the years. The Reserve Bank holds about 37.5 per cent of the Central Government securities and 0.3 per cent of State Government securities (1969). This part of the loans of Government really amounts to deficit financing. The bank also gives ways and means advances to Government.

The monetary policy of the Reserve Bank has been described as one of 'controlled expansion' of credit. The object is to restrain prices while ensuring, at the same time, that legitimate credit requirements for production are not adversely affected. The instruments of control are the bank rate, variable reserve ratios, open market operations, selective credit control and moral suasion.

The bank rate is the rate at which scheduled banks are able to get refinance from the Reserve Bank. Currently the rate is 6 per cent. The Reserve Bank has also introduced a system of differential

interest rates which penalizes excess borrowing by scheduled banks. The impact of the bank rate changes on interest structure (interest on Government securities, debentures, preference shares or equities), has, almost on all occasions, been negligible.

The technique of variable reserve ratios was used in 1960 in the sharp rise in prices but had, according to the Reserve Bank itself, 'limited success'. Open market operations can make significant difference to the money market by:

(i) altering the ratio of securities to money in the pattern of financial assets, and

(ii) altering the maturity composition of securities.

The first factor is circumscribed by the fact that the Reserve Bank as an agent of Government, is primarily interested in selling securities and as such is not left with much freedom to buy. The second factor has helped Government to keep only a very thin margin between long rates and short rates of interest. Since 1951-52, the Reserve Bank undertook net open market purchases in six years and net open market sales in 14 years. On an average, there were net open sales to the extent of Rs. 23 crores per year.

Selective credit controls stipulate a margin, impose a ceiling or regulate the rate of interest in respect of advances against the security of any commodity or shares. These controls are imposed when the price of any commodity shows an unduly sharp rise. Selective credit controls have been imposed on a variety of commodities like foodgrains, oil-seeds, cotton and *kapas*, etc. The impact of selective credit control is limited to the extent that borrowers are able to get credit from the unorganized sector. Selective credit controls have also been imposed on advances against the security of shares with a view to checking speculation and cornering.

The Reserve Bank manages the Foreign Exchange Control. The object of the control is to bring a balance between supply of and demand for foreign exchange. The control has been in force since the outbreak of World War II. The control was put on a permanent basis with the enactment of the Foreign Exchange Regulation Act 1949. The Reserve Bank does not deal in foreign exchange directly but through authorized dealers. In addition, there are also licensed dealers who undertake limited business of buying and selling foreign currency. The Reserve Bank exercises co-ordination and supervision and also collects information for compiling the balance of payments.

The financial aspects of banking operations are reflected in the liabilities and assets of the Banking Department. At the end of April, 1972 these were as follows:

TABLE II

Banking Department

(End April 1972)

Liabilities	*Rs. crores*	*Assets*	*Rs. crores*
Capital and Reserves	155	Notes and Coins	54
National Agricultural Credit (Long-term Operations) Fund, National Agricultural Credit (Stabilization) Fund, and National Industrial Credit (Long-term Operations) Fund	364	Bills Receivable	11
		Treasury Bills	52
		Balances held abroad	200
		Investments	86
		Loans and Advances	
		Government (State)	762
Deposits:		Scheduled Commercial Banks	23
(i) Government	218	State Co-operative Banks	273
(ii) Banks	266	Others	90
(iii) Others	107	Other assets	50
(iv) Other liabilities	491		

The advances of the Reserve Bank to agriculture and other rural activities through co-operative banks have substantially expanded. Outstanding short-term credit in the 20 years, 1950-51 through 1970-71, went up from Rs. 3.4 crores to Rs. 269 crores, loans under the National Agricultural Credit (Long-term Operation) Fund to State co-operative banks, State Governments and land mortgage banks from Rs. 28.6 crores in 1960-61 to Rs. 71.4 crores in 1970-71 and outstanding debentures of land mortgage banks from Rs. 0.2 crores in 1950-51 to Rs. 31.9 crores in 1970-71. The Reserve Bank has thus contributed in a significant measure to agricultural finance. But the needs are phenomenal and, consequently, additional demands have been made on the State Bank and other commercial banks.

As a developmental and promotional agency, the Reserve Bank has contributed to the share capital and bonds of the Industrial Finance Corporation of India, State Finance Corporation and the Industrial Development Bank of India.* These investments amounted to Rs. 64.6 crores at the end of March 1971. Apart from these, the Reserve Bank extends medium-term and short-term finance to I.F.C.I. and State Finance Corporations. The outstanding loans on this account were Rs. 4.1 crores (March 1971).

The Reserve Bank thus regulates money supply, controls and directs credit of the banking system, influences the structure of interest rates and provides finance on its own for agricultural and industrial development. The powers are wide and, excepting the money lenders and indigenous bankers, the whole credit system is under its control and influence.

* With effect from August 1, 1964 the shares of the I.F.C.I. held by R.B.I. stand transferred to I.D.B.I.

IV. The State Bank of India

The State Bank Group includes the State Bank of India and its subsidiaries. The bank has a Central Board of Directors and 7 local Boards at Calcutta, Bombay, Madras, New Delhi, Kanpur, Ahmadabad and Hyderabad.

The State Bank Group has close nexus with the Reserve Bank. The State Bank and its subsidiaries are agents for the Reserve Bank in places where R.B.I. does not have branches. With the nationalization of 14 major banks, the exclusive connection between Government and commercial banking through the State Bank has been superseded although these banks have not yet been authorized to transact Government business. The State Bank provides certain facilities to other scheduled banks which has earned it the title of 'lender of immediate resort'.

The State Bank Group had 3,781 branches, about 29 per cent of the total branches of commercial banks at the end of 1971. Most of these branches were in semi-urban and rural areas. The distribution by population was as follows:

TABLE III

	No. of branches	*Per cent to total*
Urban areas (Population more than 1 lakh)	725	19
Semi-urban areas (Population between 10,000 and 1 lakh)	1,541	41
Rural areas (Population below 10,000)	1,515	40

The deposits of the State Bank at the end of 1971 were Rs. 1,502 crores and of its subsidiaries Rs. 406 crores. The total deposits of the State Bank Group were about 28 per cent of the deposits of all scheduled commercial banks. Advances amounted to Rs. 1,431 crores and investment in Government securities to Rs. 504 crores.

The assets and liabilities of the State Bank Group at the end of December 1971 were as shown in Table IV.

The commercial nature of the State Bank is undoubtedly paramount. Of the total advances of Rs. 1,432 crores, loans to priority sectors were only of the order of Rs. 481.6 crores or 34 per cent. In 1968, this proportion was 18 per cent. The State Bank Group has, no doubt, more rapidly complied with social control on banking.

The major beneficiaries in the priority sector were small scale industries, exports and agriculture in that order. The State Bank has

TABLE IV

The State Bank Group

(Rs. crores)

Liabilities		Assets	
Capital funds	28	Cash and balances with banks	190
Deposits	2,201	Investments	681
Borrowings	98	Advances	1,457
Bills	105	Bills	105
Other liabilities	99	Premises and other assets	98

instituted a number of schemes to provide credit to small scale industries. It was responsible for 37.3 per cent of the total credit provided by all scheduled commercial banks to small scale industries. Similarly, the State Bank Group provided Rs. 122 crores for financing exports and its share in total export credit was 30.8 per cent at the end of September 1971. The State Bank Group has also made considerable headway in the field of agricultural finance. It was responsible for 35.4 per cent of credit given by scheduled commercial banks to agriculture.

V. Scheduled Commercial Banks

At the end of March 1971, there were 73 scheduled and 12 non-scheduled commercial banks. By June 1971, the number of non-scheduled banks had fallen to 7. Non-scheduled banks are either being merged with scheduled banks or are increasing their capital to pass into the scheduled category. Of the scheduled banks, apart from the State Bank, 14 major banks each with deposits of over Rs. 50 crores wesre nationalized in July 1969 Nationalized banks account for 82 per cent of the total branches and almost an equal percentage of deposits of all commercial banks. The banking system is thus substantially owned and wholly controlled by Government through the Reserve Bank.

The development of banking has not been even as between States. In Gujarat, Kerala, Karnataka, Punjab, Tamil Nadu and Maharashtra, the banking habit has been more widespread than in Assam, Bihar or Orissa. At the end of March 1972, population per branch office in Assam was 1.01 lakhs and in Bihar 1.07 lakhs, compared to the national average of 41,000. In the opening of new bank branches, considerable attention has been given to regional balance and, consequently, the disparities between States have been somewhat reduced. Similarly, with the inception of the State Bank,

and more particularly after the nationalization of 14 major banks in 1969, particular effort has been made to locate banks' branches in rural areas. As a result, the percentage of branches in rural areas rose from 22.4 per cent in 1969 to 35.6 per cent in 1971.

Branch expansion is pursued systematically under the Lead Bank Scheme introduced in December 1969. Under this scheme, banking development is governed by what has been called 'area approach'. The districts are allocated among different banks and each bank is expected to "survey the potential for banking development in the allocated districts to identify institutional and credit gaps and to take the initiative in endeavouring to fill them and thus intensively involve itself in the process of economic advancement of the district concerned". By March 1972, there were 13,309 bank branches compared to 8,284 in July 1969. This phenomenal branch expansion has brought down the average population served per bank office from 65,000 to 41,000. The distribution of branches among various categories of banks was as follows.

TABLE V

		Per cent to total branches of commercial banks
S.B.I. and subsidiaries		29
Nationalized banks		53
Other scheduled banks		16
Foreign banks		1
Non-scheduled banks		1
	Total:	100

The total deposits of the scheduled commercial banks were Rs. 7,524 crores at the end of June 1972, about a fifth of the national income. In spite of the commendable progress made by banks in the 1960s, and more particularly in the past 3 years, there is considerable scope for further development. The comparative ratios of bank deposits to national income (in 1970) for some selected countries are shown in Table VI.

The rate of growth of bank deposits was about 19.4 per cent in 1970-71. If, as anticipated, national income increases at 6 per cent per year and the pace of deposit mobilization is kept up, the ratio of bank deposits to national inclome would be more than 34 per cent by 1975-76, about the same as in France and even higher than in the U.K.

The bulk of the deposits, *i.e.* about 57.3 per cent, is owned by individuals. Business, including industry, trading, financial orga-

TABLE VI

	Bank deposits as % of national income 1970
U.S.A.	49.8
U.K.	25.8
France	35.5*
Germany	60.4
Canada	43.3
Japan	87.0
India	18.0

*Relates to 1969.

nization, etc. account for only 23 per cent of the deposits. The banking system thus acts largely as an intermediary between households and business on the one hand, and households and Government on the other. The composition of deposits was as follows:

TABLE VII

	Percentage to total
Demand deposits	25.5
Savings deposits	24.6
Time deposits	49.9

Demand deposits do not earn any interest. Interest on savings deposits is 4 per cent and varies with the maturity period on fixed deposits. The rates for selected maturity periods are as follows:

TABLE VIII

	Rate of interest (per cent)
3 months	4.1/4
1 year	6
3 years	7
5 years	7.1/4

Banks have to maintain a certain proportion of their deposits in liquid assets like gold, cash, balances with the Reserve Bank and approved Government securities. The legal minimum is 28 per cent cash ratio and 25 per cent investment in gold, approved securities, etc. The Reserve Bank has also devised a system of differential interest rates in terms of which interest on borrowings from it are charged at a rate higher than the bank rate if liquidity ratio is below a certain level. Against the legal 31 per cent, the minimum liquidity ratio for purpose of borrowing from the Reserve Bank at the bank rate is 34 per cent.

Investment in Government securities is normally in short securities. This is so possibly because the potential capital loss in the case of short securities consequent on rise in the rate of interest is less. Besides, the liabilities of banks are mainly short-term and, consequently, banks would like to maintain short-term assets also. For example, of the fixed deposits, 59.3 per cent were for less than 1 year and 93.8 per cent for less than 5 years. Correspondingly of the total investments in Government securities, 56 per cent were short-term, maturing in less than 5 years.

The bulk of the deposits are used to give credit. This consists of advances, largely short-term and bills. Medium term advances are hardly about 10 per cent of the total. At the end of March 1972, the composition of credit of scheduled commercial banks was as follows:

TABLE IX

Type of Credit	*Rs. crores*	*Percentage to total*
Loans, cash credit and overdrafts	4,161	80
Bills:		
Inland	825	16
Foreign	222	4

Bills are not a popular instrument of credit. This is so possibly because of the absence of financial discipline and planning in business operations. In spite of repeated efforts made by the Reserve Bank, the Bill Market Scheme has not yielded any worthwhile results. As such, flexibility and control over the money market have been somewhat blunted. In November 1970, the Reserve Bank introduced a new Bills Discounting Scheme. The outstanding amount of bills held by the Reserve Bank had reached a peak of Rs. 45 crores on April 7, 1972.

The distribution of bank credit showed a great element of skewness. At the time when the banks were nationalized, nearly 66 per cent of the credit was taken up by industry and another 19 per cent by trade. Agriculture had a paltry share of 3 per cent. This inequity in the distribution of bank credit, though historically justified in terms of commercial banks' specialization, was possibly the main consideration in the nationalization of 14 major banks in 1969. The pattern of distribution of bank credit has since considerably changed in favour of priority sectors like agriculture, small scale industries, exports, retail trade, transport operators, professionals, self-employed and education. The total amount of credit to these

sectors rose from Rs. 438.5 crores in June 1969 to Rs. 961 crores at the end of December 1971.

Bank credit reveals a marked seasonal pattern, though lately the pitch of fluctuations has considerably reduced. In the busy season, November-April, there is a steep rise in bank credit followed by a decline, though of a lower magnitude in the slack season, May-October. This seasonal pattern reflects the predominant agricultural character of the economy. Thus advances against paddy and rice, wheat, sugar, *gur*, ground-nuts, jute, cotton, etc. rise in the busy season and fall in the slack season. No such seasonal pattern is however, discernible in respect of advances against industrial goods like textiles, iron and steel, chemicals and so on. Since the proportion of credit against industrial goods has increased in recent years, the seasonal character of advances has also been mitigated. Seasonal trends in credit induce counter variations in other assets. Thus in the busy season there is generally a reduction in Government securities and an increase in borrowings from the Reserve Bank.

Interest on bank advances has stepped up quite sizably in recent years. Currently, banks charge about 11 per cent interest on general purpose advances. But certain categories of advances, for example, exports, obtained finance at a concessional rate. There is no ceiling on interest on advances charged by commercial banks. In respect of advance against cotton which was object to price rise, the Reserve Bank stipulated 13 per cent interest. Recently a scheme of differential interest rates has also been introduced which consciously discriminates between different categories of borrowers. A concessional rate of interest at 4 per cent is stipulated to certain categories of weaker sections of the community.

VI. Foreign Banks

At the time when the Indian Central Banking Inquiry Committee reported in 1931, the financing of foreign trade was done almost exclusively by what were called exchange banks. The registered office of these banks were located outside India. Pre-emption of this business was not a matter of legal protection but a mere historical practice from the days of the East India Company. The exchange banks did not confine themselves merely to financing of foreign trade although this was their principal business. They also accepted deposits, purchased and discounted bills, etc. There were 18 exchange banks in 1928 with £ 53.3 million deposits in India.

With the progress of Indian banks and the establishment of branches abroad, the monopoly of foreign banks in the financing of foreign

trade was broken. What is more, the exchange control made it compulsory for all foreign exchange dealers to operate through the Reserve Bank. It has to be recognized, however, that foreign banks have a 'global affiliation' which facilitates collaboration between foreign and Indian businessmen and arrangement of loans in foreign currencies. It is in terms of this specilization that the Reserve Bank decides on the number and location of branches of foreign banks.

Mostly, the branch network of foreign banks is confined to port towns. The scope for branch expansion of foreign banks appears to be extremely limited. In the two years following nationalization of 14 major banks, the total number of branches of scheduled commercial banks increased by 3,716 but branches of foreign banks by only 1.

Banking laws do not make any differentiation between Indian banks and foreign banks. When banks were brought under social control informally in 1968, and through legislation in 1969, foreign banks, like Indian banks, were required to constitute advisory boards (consisting of Indians) with a majority of persons having special knowledge of or practical experience in accountancy, agriculture and rural economy, small scale industries, co-operation, banking, economics, finance and law. It was made incumbent on foreign banks informally to have as their 'own funds deployed in Indian business' an amount equivalent to 3.5 per cent of their deposits in India by creating reserves, granting loans in foreign currency to Indian parties or making deposits with the Reserve Bank in its foreign account. Foreign banks are required to maintain a credit deposit ratio of not more than 80 per cent subject to deduction in respect of export bills, etc.

There were 14 foreign banks in India accounting for about 9 per cent of the total deposits of scheduled commercial banks at the end of March 1972. Their principal assets and liabilities were as follows:

TABLE X

	Rs. crores
Liabilities	
Demand deposits	216
Time deposits	410
Assets	
Cash in hand, balance with R.B.I. and other banks, and money at call	48
Investment in Govt. securities	172
Bank credit	489

There are not many significant differences in the composition of assets and liabilities of foreign banks and Indian commercial banks except, in a small measure in respect of:

(a) the ratio of bank credit to bank deposits, and

(b) the ratio of bills to total bank credit.

The ratio of bank credit to bank deposits in the case of foreign banks was much higher than in the case of Indian banks. For example, at the end of March 1961 the ratio of bank credit to deposits was 107 per cent in the case of foreign banks compared to 71 per cent in the case of Indian scheduled commercial banks. Since then the credit deposit ratio in respect of foreign banks has been brought down to 78 per cent (March 1972), compared to 73 per cent in respect of Indian scheduled commercial banks.

The other marked difference is in the composition of bank credit. At the end of April 1972, this composition was as follows:

TABLE XI

	Foreign banks	*Indian scheduled commercial banks*
Percentage of loans to credit	75	80
Percentage of inland bills to total credit	12.5	16
Percentage of foreign bills to total credit	12.5	4

The differences in the pattern of assets reflect mainly the nature of specialization. Foreign banks allocate a large part of their business to financing of foreign trade, joint ventures, etc. Hence a larger percentage of credit is absorbed by purchase and discount of foreign bills. Foreign banks are more involved in the international economic aspects rather than in purely internal financial affairs.

VIII. Indigenous Banks

Money lenders and indigenous bankers comprised the core of the financial system until recently. In 1930, they accounted for nearly 90 per cent of the total credit. The growth of banking has since been at a relatively faster pace. As a result, indigenous bankers today hardly account for 10 per cent of the credit operations in the money market.

The number of money lenders and indigenous bankers was placed at 33,939 in the census of 1961. Of these, indigenous bankers are located primarily in urban areas and come largely from certain communities like *Multanis, Shroffs,* and *Marwaris* in the Western, Eastern and Northern India and *Sindhi Multanis, Nattukottai Chettiars* and Brahmins of Kallidaikurichy in South India. Indigenous bankers are concentrated in the industrial areas of Bombay, Ahmadabad, Madras, etc.

Indigenous bankers finance primarily those sectors which are not able to get credit from banks. These are traders, both retailers and wholesalers, small scale industries, etc. Some of the borrowers prefer indigenous bankers to commercial banks because the former provide informal and personalized services, are flexible in their approach and process proposals without delay. They mainly function on the basis of trust. The rates of interest are higher than those charged by commercial banks but lower than those charged by money lenders.

There are about 400 firms of *Multani Shroffs*, 253 of which operate in Bombay. The principal vehicle of credit used by *Multani Shroffs* is the *hundi* The *Multanis* share risk when large loans are involved Traders and small scale industries are the principal borrowers. The data collected by the Working Group of the Banking Commission indicate that the main sources of finance to *Multani Shroffs* are owned capital, bank borrowings and deposits. In respect of 319 firms, the components of capital employed were as under:

TABLE XII

Sources	*Rs. crores*
Bank borrowings	20.2
Owned capital	16.4
Deposits	3.7
	40.3

The *Multani Shroffs* have a close nexus with the banking system. Nearly a half of the capital employed is borrowed from commercial banks. The vast bulk of the other half is owned capital. Deposits are relatively insignificant. The *hundi* is the main instrument of credit and usually has a tenure of three months. As such, the total turnover of *Multani Shroffs* would be about Rs. 160 crores.

Unlike *Multani Shroffs*, the operations of the *Gujarati Shroffs* are akin to those of commercial banks. The bulk of the finance comes from current and fixed deopsits. Howevr, some of the *Shroffs* also combine commission agency business. The *hundi* is the principal instrument of credit and is used largely for marketing and movement of goods. In Ahmadabad, there are about 150 *Shroffs* who do exclusively financial business. In Bombay, most of the *Gujarati Shroffs* also combine other interests. The organization often takes the form of partnership, some with branches in rural areas. The financial structure of 350 *Gujarati Shroffs* (Ahmadabad and Bombay) in 1969 was as follows:

TABLE XIII

	Owned capital	*Deposits*	*Total resources*	*Advances*
150 Ahmadabad firms	5.10	11.0	16.10	14.0
200 Bombay firms	10.00	15.0	25.0	22.0
Total	15.10	26.0	41.10	36.0

The *Gujarati Shroffs* pay interest at the rate of 4 to 6 per cent on demand deposits; the commercial banks do not pay any. The *Gujarati Shroffs* also accept term deposits the interest on which goes upto 11 per cent or so. There is a call market for funds which redistributes, among the *Shroffs*, surplus funds for short periods.

The total *hundi* business of *Gujarati Shroffs* in Bombay and Ahmadabad is estimated at Rs. 600 and Rs. 300 crores respectively. Recently some of the *Gujarati Shroffs* formed themselves into groups of partnership firms and provide, in line with the business of *Marwari Shroffs*, short-term finance to retail trade, small scale industries, etc., against usnance *hundis*.

The *Chettiars* did banking business not only in South India abut also in Burma, Sri Lanka and Indo-China. Estimates about the working capital of the *Chettiars* varied from Rs. 36 crores to Rs. 105 crores. The bulk of these were owned funds. Similarly, reliable estimates about the capital resources of the *Kallidaikurichi* Brahmins are not available. But their operations were much smaller than those of the *Chettiars*. Both *Chettiars* and *Kallalidaikurichi* Brahmins have shrunk in size and lost much of their business to *Multani Shroffs*. A few *hundi* firms have gone into banking business. Presently, there are less than 50 *Chettiar* firms doing *hundi* business.

The number of indigenous bankers known as *Marwari Kayas* in Assam is estimated at 400. They provide facilities mostly to tea gardens. They also combine other functions like retail trading, commission agency, etc.,

Indigenous banking is not an isolated sector of the money market. There is considerable inter flow of funds between indigenous bankers and commercial banks. The discounting of *hundis* by indigenous bankers enables the commercial banks to invest surplus funds for short periods. This opens a source of supplementary finanace to indigenous bankers, particularly *Multani Shroffs*. The rate of interest charged by indigenous bankers is higher,, because first, the interest rate is exposed more fully to market forces, and secondly, the element of lender's risk is greater. However, an effort has been made by some States to put a ceiling on interest rates through legislation. The Bombay Money Lenders Act puts the

ceiling at 17 per cent (since July 1971). The Mysore Money Lenders Act, similarly, imposes a ceiling of 18 per cent. With the ceiling rates and the rise in the cost of bank credit, the indigenous bankers' margins have been somewhat squeezed. The margin between commercial banks' discount rate of *hundis* and the lending rates of *Multanis* is even less than the differential between deposit rate and advance rate of commercial banks.

The indigenous bankers are largely outside the ambit of any credit policy. The Reserve Bank's attempts to establish direct links with indigenous bankers failed and all moves to integrate this unorganized sector with the rest of the financial system proved infructuous. The Banking Commission (1972) has recommended a closer link between indigenous bankers and scheduled commercial banks. The Reserve Bank control and supervision in that case will be indirect.

VIII. Insurance

The first step in regularizing insurance business was taken in 1912 when the Indian Life Insurance Companies Act was passed. The provisions of the Act soon proved inadequate and a comprehensive Insurance Act was promulgated in 1939. The Act was substantially amended in 1950. In 1956, life insurance companies numbering about 250 were nationalized. A single corporation called the Life Insurance Corporation of India was set up to take over the entire life insurance business. General insurance companies remained in the private sector. In 1968, a scheme of social control was introduced in the form of the Insurance Amendment Bill which was later passed by Parliament. These measures were considered insufficient and in 1971 Government took over management of general insurance companies through an ordinance The companies were finally nationalized in 1972. Thus, the entire insurance business --life and general --is now in the public sector. While life insurance is handled by a single corporation, general insurance will be entrusted to four separate corporations to ensure competition

The total business in force of the Life Insurance Corporation (L.I.C). at the end of March 1970 was Rs. 6,425 crores, nearly a fifth of the national income The book value of the investment was Rs. 1,529 crores comprising stock exchange securities, loans, deposits and contribution to initial capital of the Unit Trust of India. The distribution of investments in India was as shown in Table XIV.

Life insurance is an important outlet for the savings of the households. In 1969-70, about 11 per cent of these savings (held in financial assets) were invested in life insurance policies. The L.I.C. has

TABLE XIV

Sectors	*Percentage to total*
Public sector	73.6
Co-operative sector	9.5
Joint sector	0.4
Private sector	16.5

become a crucial savings institution, and consequently, the pattern of its assets influences the overall distribution of funds in the economy.

The L.I.C. is a major customer for Government securities. In 1969, nearly 11 per cent of the Central Government securities and 23 per cent of the State Government securities were held by the L.I.C. What is important, the share of the L.I.C. in the public debt has been increasing over the years. The market for Government securities is now confined almost wholly to institutional investors including the L.I.C. provident funds and banks.

There were 67 Indian and 45 non-Indian insurance companies registered under the Insurance Act 1938 engaged in general insurance business. Their net premium income during the year 1969 was Rs. 106.5 crores and Rs. 16.7 crores respectively. For Indian insurers, excluding the L.I.C., the excess of income over expenditure was Rs. 13.09 crores, Rs. 5.81 of which represented an increase in reserves.

The composition of assets at the end of December 1969 was as follows:

TABLE XV

Type of Asset	*Indian Insurers*		*Non-Indian Insuruers*	
	Amount	*Percent to total*	*Amount*	*Percent to total*
Government securities	11.92	6.5	1.93	6.8
Debentures of Indian companies	14.01	7.5	1.39	4.9
Preference shares of Indian companies	13.35	7.1	0.74	2.6
Ordinary shares of Indian companies	42.06	22.4	3.22	11.4
Deposits, cash and stamps	43.37	23.1	9.99	35.3
Loans	4.71	2.4	1.25	2.6
Agents' balances outstanding	36.49	19.4	3.04	10.8
Property and other assets	18.77	19.0	6.77	2.03

There is considerable difference in the pattern of investment between the L.I.C. and general insurance. While the former invested the bulk of the resources in Government securities—Centre and States—the

latter used a larger part of the resources for investment in debentures, preference shares and ordinary shares of Indian companies. However, in absolute terms the resources at the disposal of the L.I.C. are larger. The L.I.C. holds over 9 per cent of the total number of shares quoted on stock exchanges.

The L.I.C. did not, until recently, exercise voting power in respect of shares held by it. The investment was purely financial. But with the promulgation of guidelines for conversion of loans into equities, it has been provided that the financial institutions should exercise their powers as shareholders more discreetly. This has put considerable voting power in the hands of the L.I.C.

The L.I.C. and the general insurance companies act as financial intermediaries for mobilizing capital for the private corporate sector. They underwrite capital issues. In 1970-71, of the Rs. 30.5 crores of capital underwritten, about 14.2 per cent was underwritten by the L.I.C. and 3.1 per cent by the general insurance companies. Of the total capital underwritten by them, 77 per cent was subscribed either as investors or as underwriters.

VI. Stock Exchanges

The first organized Stock Exchange was established in Bombay in 1887 and was styled as 'The Native Share and Stock Brokers' Association'. Even fifty years before the Exchange was established there were considerable dealings in securities. The number of brokers involved in this business numbered about 6 in 1850, and after the share mania induced by the American Civil War, increased to 200-250 in 1865. When the Stock Exchange was constituted in 1887 there were 318 members on the list.

The Stock Exchange in Bombay was followed by the Ahmadabad Share and Stock Brokers' Association in 1894, Calcutta Stock Exchange Association in 1908 and the Madras Stock Exchange Association (Pvt.) Ltd. in 1937. A number of other stock exchanges had sprung up during the First and the Second World Wars But most of these were makeshift stock exchanges and collapsed soon after. When the Securities Contracts (Regulation) Act 1956 was passed, only 7 stock exchanges, viz., Bombay, Ahmadabad, Calcutta, Madras, Delhi, Hyderabad and Indore, received recognition. The Bangalore Stock Exchange was registered in 1957 and recognized in 1963. There are thus 8 stock exchanges, only 5 of which were permitted to undertake forward dealing.

The Securities Contract (Regulation) Act 1956 is the major comprehensive legislation which regulates stock exchanges. The control

was operated earlier through the Bombay Securities Contract Control Act 1925 and the Defence of India Rule 94 C. The Securities Contract (Regulation) Act 1956 allows only recognized stock exchanges to carry on business.

Stock exchanges have to be approved by Government which has powers to amend any rule and frame new ones. Government can also institute enquiries into the affairs of stock exchanges. Excepting spot delivery, all other security contracts, to be legal, have to be effected through members of recognized stock exchanges. The Act empowers Government to prohibit any type of dealings on any stock exchange to prevent speculation. It is under these provisions that forward dealing in shares was banned with effect from June 27, 1969.

The Stock Exchange is not a source of finance to industry or Government. It is a market where securities like equity shares, preference shares, debentures, gilt-edged etc., are traded. By keeping the market active through spot and forward dealings, the Stock Exchange imparts liquidity to securities, promotes continuity of price, ensures free negotiability and thus makes them an attractive investment.

Securities quoted on stock exchanges can be classified into either cleared securities or non-cleared securities. Both types of securities can be dealt in for spot deliveries; but business for clearing can be done only in respect of the former. To get on the clearing list, securities must be fully paid up. Equity shares must have been admitted to dealings for at least three years to get on the clearing list. Besides, the company must be of public importance with paid-up capital of not less than Rs. 25 lakhs and the market value not less than Rs. 1 crore, at least 49 per cent of it being held by the public.

In 1969, there were 1,974 companies whose securities (equities, preference shares and debentures) were quoted on the 8 recognized stock exchanges. The paid-up capital of these securities was Rs. 2,560 crores and their market value Rs. 3,558 crores. The relative position of different stock exchanges is shown in Table XVI.

The industry-wise composition of securities has substantially changed in recent years. When the stock exchanges were set up, the vast bulk of the shares in Bombay and Ahmadabad were cotton textiles and in Calcutta, jute, tea and coal. With the industrialization of the country, a variety of new industries have emerged. The more prominent of these are engineering and chemicals. In 1969, engineering accounted for about 25 per cent of the market value of capital employed by way of equities, preference shares and debentures, and chemicals, another 10 per cent. The share of cotton textiles was 11 per cent and that of jute and coal even smaller.

TABLE XVI

	No. of listed companies	*No. of stock issued listed*	*Market value of capital Rs.* crores	*Paid up value of capital Rs.* crores
Bombay	570	1,042	1,485	1,014
Calcutta	641	1,066	897	655
Madras	361	673	405	348
Ahmadabad	127	272	307	196
Delhi	158	308	316	234
Hyderabad	38	66	57	49
Indore	14	19	34	17
Bangalore	65	108	57	47

The bulk of the shares are held by individuals either directly or through joint stock companies. The pattern of ownership was as follows:

TABLE XVII

Class of shareholders	*Percentage of shares held*
Individuals	45.58
Joint stock companies	32.76
Financial institutions	18.53
Life Insurance Corporation	9.02
Others	3.13

Share holding had attracted considerable public interest. This was particularly true of small investors. Between 1959 and 1965, for example, the total number of individual shareholders (accounts) in respect of 48 companies increased from 3,22,497 to 4,09,757. More than 93 per cent of the increase was in the small shareholder class holding shares of value less than Rs. 5,000. In terms of value, more than 64 per cent of the additional shares were held by this class. Unfortunately, however, this interest was short-lived.

The market for securities showed considerable actiivty in the mid-fifties and the early-sixties. Since 1962, however the market has been considerably subdued. The index number of variable dividend securities on base 1961-62=100 declined to 76 in 1965-66 and regained its level only in 1970-71. The index slumped again in 97.6 at the end of May 1972. In these 10 years, all other prices of commodities and assets had substantially increased, making industrial securities—equities, preference shares and debentures—an unattractive investment. This was possibly why companies were unable to raise adequate finance from the open market. The total capital raised by non-Government companies in 1971 was only about a half of that in

1961. Raising finance from the public has become a difficult task, and, as such, companies have been forced to depend, in a high measure, on financial institutions.*

Public interest in shares has been further weakened by factors which have impaired their liquidity. Banks are normally reluctant to advance against blocks of shares. For loans exceeding Rs. 50,000 secured by shares, the latter have to be transferred in the name of banks. This has made shares a poor security for bank advances and consequently diluted public interest in share-holding.

Since a large part of the finance for industry currently comes from financial institutions, it was suggested by the Dutt Committee that the financial institutions should have the option to convert a part of the loans into equities. These powers have now been given to the financial institutions and the conversion clause is usually inserted in all loan contracts exceeding Rs. 50 lakhs.

* The principal institutions include I.D.B.I., I.F.C./S.F.C.s, and U.T.I. for long-term and medium-term funds and scheduled commercial banks for short-term funds.

CHAPTER XII

CURRENCY AND PRICES

A. CURRENCY

I. Historical Review Of Currency

The currency history of India since the early part of the nineteenth century is of unusual interest and significance in monetary annals. During this period, India successively passed through a variety of phases with regard to monetary standards. Starting with a silver standard in the middle thirties of the nineteenth century, the country had a 'managed' inconvertible silver currency (1893-1898), gold exchange standard (1899-1916), a mixed standard (1917-1926), gold bullion standard (1927-1931), sterling exchange standard (1931-1947), and finally, after independence, a managed rupee standard. The crux of the monetary controversy during the last century or so has consisted in the twin issues of the choice, firstly, of a workable monetary standard based on silver, gold or sterling and, secondly, of an appropriate rate of exchange between the domestic currency, *viz.*, the rupee, and the prevailing standard. Likewise, India's currency experience embodies the working of both the Fixed Fiduciary System and the Proportional Reserve System for the issue of currency. Under a Fixed Fiduciary System, the volume of currency that can be issued against domestic Government securities cannot exceed a stipulated statutory maximam whereas, a Proportional Reserve System lays down the minimum proportion of currency which has to be covered by metallic reserves in the form of bullion or coin and foreign securities.

The origin of the modern Indian monetary system may be traced to the Gold and Silver Coinage Act of 1835 whereby the East India Company established the silver rupee (180 grams in weight and 11/12 fine) as the sole legal tender currency for payment throughout its territories. The face value of the rupee was equal to its intrinsic value and the mints were opened to its free coinage. This was a form of monometallic silver standard to replace the variety of bimetallic standards prevailing in the Company's territories. However, the Act of 1835 also authorized the coinage of gold *mohurs* and specified gold coins at market value, if required by the public. Although the Presidency Banks of Bengal, Bombay and Madras were authorized to issue notes payable to bearer on demand, their circulation was practically confined to the Presidency towns. Even after the enactment of the Paper Currency Act of 1861, while notes were issued to the public without limit in exchange for rupees or British gold coins, they were declared unlimited legal tender only within their respective circles of issue. The Act of 1861 provided

for a fixed maximum fiduciary issue of notes against Government of India securities upto Rs. 4 crores, a limit which ws successively raised by special Acts to Rs. 6 crores (in 1871), Rs. 8 crores (in 1890), Rs. 10 crores (in 1897) and Rs. 12 crores (in 1905). The remainder of the paper currency circulation was fully backed by bullion and coin. Government securities, gold and silver coin and bullion, against which notes were issued, were kept in a reserve called the Paper Currency Reserve.

The efficient working of the silver standard was rendered increasingly difficult with the depreciation of silver that accompanied its rising production as well as falling demand consequent upon the demonetisation of silver by several countries. The corresponding appreciation of gold with its smaller output and enhanced demand from countries adopting the gold standard further complicated the situation. The depreciation in the value of the rupee also created a difficult budgetary problem for the Government of India which had to mobilize larger rupee reources, mostly through higher taxation, to meet the Home Charges in England on account of interest on sterling debt, payments for Government stores, pensions and other items. Likewise, the fluctuations of the exchange rate affected not only foreign trade but also the inflow of foreign capital, enterprise and personnel.

Recognizing the need for monetary reform, the Government of India appointed in 1892 the Herschell Committee and, in pursuance of its recommendations, passed the Act of 1893. Under this Act, the mints were closed to the free coinage of both silver and gold, although the Government retained the power to coin rupees on their own account. The Act also provided for receipt of gold at the mints at the rate of 16d. to the rupee and the issue of notes in exchange for gold. Government also decided that there should be a transitional period before an attempt was made to coin gold in India and establish a full-fledged gold standard as recommended by the Herschell Committee.

Instead, following a period of transition, there came to be established, under the Act of 1899, in the light of the recommendations of the Fowler Committee (appointed a year earlier) and as administratively modified, a gold exchange standard. The main features of the currency system which thus came to be established and which remained in operation till 1916, were: (a) the sovereign was unlimited legal tender, at 1s. 4d. to the rupee; the authorities also issued sovereigns and half sovereigns to a limited extent but undertook no obligation to give them in exchange for notes or rupees; (b) the rupee was unlimited but inconvertible legal tender; (c) the rupee was maintained at 1s. 4d. by purchases and sales of sterling at fixed rates, largely through the system of Council Drafts and Reverse Council Drafts whereby the demand for rupees/sterling was met by payments of sterling/rupees into the Paper Currency Reserve, the Gold Standard Reserve or the Secretary of State's Balances.

In accordance with the recommendations of the Committee a reserve — called the Gold Standard Reserve — was created out of the profits of the coinage of silver rupees; this was designed to maintain the external value of the rupee. A change was also made in the composition of the Paper Currency Reserve. Since 1905 a part of the invested portion (upto Rs. 2 crores) of the Paper Currency Reserve was also authorized to be held in sterling securities, the remaining portion being invested in Government of India securities.

The outbreak of World War I made it difficult to maintain the exchange value of the rupee; there was a phenomenal rise in the price of silver leading to the intrinsic value of the rupee exceeding its face value. The price of silver rose from 27¼d. per standard ounce in 1915 to above 43d. in August 1917. At this price (43d.) the exchange value of the rupee was equivalent to its bullion value and, with every rise in the price of silver above 43d., the exchange value of the rupee also had to be raised *pari passu.* The Gold Exchange Standard which depended, among other things, on the rupee remaining a token coin thus virtually broke down. Accordingly, several corrective measures were taken apart from allowing the exchange rate to rise, such as the purchase by Government of 200 million fine ounces of U.S. silver, a ban on import of silver on private account, prohibition of melting of gold and silver coins in India, and the issue of an Ordinance (June 1917) requiring all imported gold to be sold to the Government. The fiduciary note issue limit was also increased from Rs. 14 crores in 1911 to Rs. 120 crores in 1919.

In 1919 the Babington Smith Committee was appointed to examine the effects of the war on the Indian exchange and currency system and to make recommendations to ensure a stable exchange. The committee's main recommendations, which were accepted by the Government in 1920, were to fix the exchange value of the rupee in terms of gold at 2 s. (*i.e.* one rupee for 11.30016 grams of fine gold) and to prescribe a minimum of 40 per cent metallic backing for the paper currency with a maximum fiduciary issue of Rs. 120 crores for a limited period. Besides, provision was to be made to issue notes upto Rs. 5 crores against export bills over and above the fiduciary issue to meet seasonal demands. The attempt to stabilize the exchange rate of the rupee at 2 s. (gold) failed because of an unfavourable balance of trade and the rapid fall in sterling relatively to rupee prices. The adjustment took the form of a fall in the exchange rate rather than in internal prices. After May 1925, the rupee ratio was maintained around 1s. 6d. and the Government introduced the system of purchase of sterling in India through the Imperial Bank from exchange banks and recognized firms in order to replace gradually the sale of Council Drafts in London, *i.e.* the system whereby sterling used to be tendered in London for credit to the Secretary of State

against rupee paid in India.

Following the return of England to the gold standard in April 1925, the Government of India appointed the Hilton Young Commission in August, 1925 to examine and report whether any modifications were desirable in the Indian currency system. Its report and recommendations were the most far-reaching of those of all he Currency Commissions appointed in India till that time. The commission rejected the gold exchange standard chiefly on the ground that it was too complicated to secure the confidence of the general public since the backing which the system supplied for the currency was too abstract to be readily intelligible to the majority. The commission, therefore, recommended the establishment of a gold bullion standard (without internal circulation of gold coins) and an exchange rate (fixed in terms of gold) of 1 s. 6 d. for the rupee. It also proposed that the control and management of currency be entrusted to a Central bank to be called the Reserve Bank of India and that the Paper Currency Reserve and the Gold Standard Reserve should be amalgamated; it also recommended that not less than 40 per cent of the combined reserve should consist of gold and gold securities. The recommendations of the commission were followed by acute controversy which centred for the most part on the choice of the 1s. 6d. ratio and, to a lesser extent, on the organization and powers of the proposed Reserve Bank.

The Currency Act of 1927 established the 1s. 6d. (gold) ratio by imposing statutory obligations on the Government to purchase gold in bars (containing not less than 40 tolas or 15 ozs. or 466.55 grams) at Rs. 21-3-10 per tola and to sell gold for delivery at Bombay or sterling for delivery in London in amounts of not less than 1065 tolas (400 ozs. or 12421.95 grams) of gold or the sterling equivalent thereof. The retention by the Government of the option of selling sterling against rupees meant that the standard adopted was not a gold bullion standard but a gold exchange standard so long as sterling was convertible into gold as it was upto September 21, 1931, and a sterling exchange standard thereafter.

The proposal for the creation of the Reserve Bank, which was referred to a Select Committee of the Indian Legislature, was dropped in February 1928 owing to differences between the Government and the Opposition on the organization of the bank, particularly regarding the composition of the directorate and its creation as a shareholders' bank.

With the delinking of sterling from gold on September 21, 1931 when England went off the gold standard, the rupee was linked to sterling at 1s. 6d. The Government of India assumed the statutory obligation to sell and buy sterling against rupees at this rate. Thus in law and practice India adopted a formal sterling exchange standard which was retained even after the creation of the Reserve Bank of India in 1935

and continued to be in operation until the cretion of a new international monetary system under the auspices of the International Monetary Fund.

The establishment of the Reserve Bank of India is a landmark in the monetary history of India not only because it set up for the first time a unified monetary authority to control both currency and credit but also introduced a basic change in the currency system by replacing the Fixed Fiduciary System by a Proportional Reserve System comprising a minimum cover of gold (in coin and bullion) or sterling securities of 40 per cent and of not less than Rs. 40 crores in value. The Reserve Bank assumed the liability of the currency notes of the Government of India and the corresponding assets in the Gold Standard Reserve and the Paper Currency Reserve, which were maintained separately heretofore.

Although the Proportional Reserve System imparted the necessary flexibility, particularly for expanding the note issue, a construction in foreign exchange reserves below the minimum level necessary to maintain a given note circulation necessitated a contraction of note issue to a larger extent than the fall in reserves. Consequently, the Bank kept a larger proportion of gold and sterling reserve, around 52-58 per cent during the years 1935-39, than the minimum of 40 pr cent.

But, in keeping with the general trend of central banking legislation to delink foreign reserves from the note issue consequent upon a growing recognition that the main purpose of foreign exchange reserves is to meet deficits in the balance of payment, the Proportional Reserve System was again modified by the Reserve Bank of India (Amendment) Act, 1956. This provided for a minimum of foreign reserves in absolute amount of Rs. 400 crores in foreign securities and Rs 115 crores in gold coin and bullion (valued at 2.88 grains of fine gold per rupee or Rs. 53.58 per 10 grams in terms of the official parity price agreed to by the International Monetary Fund) A further change made by the Reserve Bank of India (Second Amendment) Act, 1957 reduced the aggregate value of gold and foreign securities to be held in the Issue Department at any time to not less than Rs. 200 crores, of which the value of gold should not be less than Rs. 115 crores. The Act also empowers the Reserve Bank, with the previous sanction of the Central Government, to suspend the requirement of holding foreign securities, though not the provision for a minimum gold holding of Rs. 115 crores.

The backing for the rest of the note circulation can, under Section 33 of the Reserve Bank Act, comprise rupee coin, rupee securities of the Government of India and such bills of exchange and promissory notes payable in India as are eligible for purchase by the bank. But in practice the major part of the cover consists of Government of India rupee securities including *ad hoc* Treasury bills because commercial bills and promissory notes have not figured as assets owing to lack of a proper bill market.

India's assumption of membership of the International Monetary Fund in 1946 and its political independence since August 15, 1947 have brought about further important changes in the statutory basis as well as the operation of the currency system. This may now be described as a fully autonomous as well as a managed monetary system which provides for the requisite elasticity of money supply. This system is described later in the section on 'External Value of the Rupee'.

II. Changes in the Volume and Composition of Currency

The volume of currency, although it is the most important means of payment, does not encompass the total monetary media in the community, which included bank deposits besides currency. It is therefore more meaningful to study the changes in the supply of money (*i.e.* legal tender currency with the public and bank deposits) as a whole rather than of currency alone. In the absence of a consistent time-series of money supply in India this section attempts to explain the mechanism and causes of variations in money supply since 1951. Apart from the convenience of availability of data for this period, it has the added advantage of being a period of active monetary management which fully exemplifies the working of the principal determinants of money supply.

Before analysing the variations in the supply of money, the concepts as used here may be briefly elucidated, particularly as these are operational definitions which vary with the purpose and scope of the analysis and do not have a universally accepted connotation. The most widely used concept of money supply is the one which refers to the magnitude of money supply with the public (*i.e.*, entities other than the Government and the banking system) comprising both legal tender curency (*i.e.*, notes and coin) and bank deposits.

Currency with the public comprises currency notes and coins in circulation excluding the balances of Central and State Governments held at treasuries and cash on hand of banks. Cash balances of Government are excluded because variations in them can be used as instruments for influencing the liquidity of the rest of the economy *i.e.*, off-setting any excess or deficiency of money supply with the private sector. The cash on hand of banks, including their balances with the Reserve Bank, is excluded because it constitutes the reserve against deposits and cannot therefore be used for purposes of transactions.

The deposit component of money supply consists of (a) demand deposits of banks, *i.e.*, those deposits which are withdrawable without notice such as deposits in current account and overdue fixed deposits, and (b) 'other deposits' with the Reserve Bank, which include items such as deposits of quasi-Government institutions and of foreign Central Banks as well as those balances of the International Monetary Fund (held in Account No. 2), which consist of working balances to meet the

Fund's administrative expenditure in India. Time deposits of banks and post-office savings deposits are excluded from money supply because these are essentially instruments of savings and are not ordinarily used as media of exchange. In the case of savings deposits with commercial banks, only that part which is withdrawable readily and consitutes the demand liability portion of such deposits is included. Recently the rules regarding withdrawal of savings deposits have been liberalized by many commercial banks, as a result of which the demand liability portion of such deposits has increased considerably.

Of the total currency with the public, one-rupee notes and small coins are the liability of the Government and form only a small portion of total currency. All other currency notes and 'other deposits' with the Reserve Bank are the liability of the Reserve Bank. Demand deposits are the liability of commercial banks. Thus money supply is largely the liability of the Banking System to the public and to a small extent that of the Government. However, there are other liabilities of the banking system, apart from demand deposits, *e.g.*, time deposits and items like capital and reserves of the banks as well as of the Reserve Bank which constitute the non-monetary liabilities of the banking system.

It will be clear from the above definitions that any transactions which increase either currency or deposit money (*i.e.* demand deposits) with the public will increase money supply; on the other hand, any transactions which increase time deposits, balances of the Government, cash on hand of the banks or non-monetary liabilities of the banking system, will decrease money supply. Since liabilities and assets of the banking system (including the Reserve Bank) must always be equal, changes in money supply, *viz.*, monetary liabilities of the banking system can be explained in terms of changes in (financial) assets, on the one hand, and changes in non-monetary liabilities of the banking system, on the other. Factors which account for such changes would thus explai n variations in money supply, as indicated in the following equation:

Increase in money supply (Currency plus bank deposits).	Increase in financial assets of banking system minus increase in non-monetary liabilities.

and *vice versa* for a decrease in money supply.

There are five major factors which affect money supply with the public *i.e.* (1) net bank credit by the banking system to Government which is the net result of banks' and Reserve Bank's investments in Government securities and loans and advances to Governments, Central and State*, offset by Government deposits with the Reserve Bank. (ii) net bank credit to the private sector comprising Reserve Bank of India

*Since 1943-44, however, there have been no loans and advances by the Reserve Bank of India to the Central Government and therefore this item thereafter pertains only to State Governments.

Credit to the private sector and banks' net credit to the private sector which, in turn, is the result net of banks' loans and advances to the private sector offset by banks' time deposits; (iii) net foreign exchange assets of the Reserve Bank and other banks, *viz.* the excess of foreign exchange assets over liabilities. Changes in foreign exchange assets of the Reserve Bank affect money supply since a rise in these as sets will be balanced by an increase in currency or deposit liabilities of the banking system to the public; a surplus in the balance of payments will therefore increase money supply and a deficit will reduce it; (iv) Government's net currency liability to the public, which indicates the changes in the public's holdings of one-rupee notes and small coins, and (v) net non-monetary liabilities of the banking system, which also include some errors and omissions. An increase in the first four factors will increase money supply, whereas an increase in the last one will decrease it. It may be pointed out that all the factors affecting money supply cannot be completely identified for want of adequate data. For instance, it is not possible to isolate the effect on money supply of the transactions of the foreign sector (comprising foreign companies, institutions and non-resident individuals) with the banking system.

The following Table presents a broad analysis of trends in money supply during the period 1951-52 to 1969-70 and factors affecting the variations:

TABLE I

(in Rs. crores)

	First Plan Period 1951-52 *to* 1955-56	*Second Plan Period* 1956-57 *to* 1960-61	*Third Plan Period* 1961-62 *to* 1965-66	1966-67 *to* 1969-70
A. Money supply with the public	**+196**	**+704**	**+1,661**	**+1,850**
1. Currency with the public	**+166**	**+527**	**+936**	**+972**
2. Other deposits with the Reserve Bank of India	**—15**	**+4**	**+3**	**+41**
3. Bank Money (Demand deposits of commercial and co-operative banks)	**+45**	**+173**	**+722**	**+837**
B. Factors affecting money supply				
1. Net Bank Credit to Government	+297	+1,384	+1,321	+917
2. Net Bank Credit to Private Sector	+105	+23	+642	+738
3. Net Foreign Exchange Assets of the Banking Sector	—96	—664	—107	+439*
4. Government's net currency liabilities to the public	—52	+17	+81	+68
5. Net non-monetary liabilities of the Banking Sector (including errors and omissions)	—58	—56	—276	—312*

*Excluding the charges due to revaluation of gold held in the Issue Department of the Reserve Bank from February 1, 1969.

It is evident that net bank credit to Govrenment has been the most important factor accounting for increase in money supply over the larger part of this period, though in some years such as 1966-67 (+Rs. 225 crores) and 1969-70 (+Rs. 249 crores) net bank credit to the private sector has been the major source of monetary expansion. On the other hand, the factor which tended to moderate the increase in money supply during this period, particularly during the Second Plan years, was a decline in foreign exchange assets.

Of the total money supply with the public, notes in circulation are the most widely-used medium of exchange, as the following figures show:

TABLE II

As on Last Friday of March 1970

(Rs. crores)

(1) Money supply with the public	6,379	
(2) Currency with the public	4,006	
(2) as % of (1)		62.8
(a) Notes in circulation	3,799	
(a) as percentage of (2)		94.8
(b) Estimated circulation of rupee coins	233	
(b) as percentage of (2)		5.8
(c) Estimated circulation of small coins	123	
(c) as percentage of (2)		3.1
(d) Less cash on hand with banks	149	
(d) as percentage of (2)		3.7
(3) Deposit money with the public	2,373	
(3) as percentage of (1)		37.2
(e) Net demand deposit of banks	2,315	
(e) as percentage of (3)		97.5
(f) Other deposits with Reserve Bank	58	
(f) as percentage of (3)		2.5

It is also interesting to note that, although currency (notes and coins) has been the predominant component of money supply in India, the (crude) ratio of deposit money to total money supply was as high as 43-46 per cent in the thirties and early forties of the present century.

TABLE III

(in crores of Rs.)

End of March	*Money supply with public A*	*Currency B*	*Deposits C*	*% of C to A*
1936	281	160	121	43.1
1941	456	246	210	46.0
1946	2,120	1,334	786	37.1
1951	2,016	1,406	610	30.3
1956	2,217	1,571	646	29.1
1961	2,869	2,098	771	26.9
1966	4,529	3,034	1,495	33.0
1970	6,353	4,009	2,344	36.9

Although the money supply data are not strictly comparable over these years, it would appear that, while both currency and deposit money

have been increasing, currency has risen at a more rapid rate than deposits over the period as a whole. This is partly due to the fact that the initial impact of absorption of the non-monetized sector into the monetary economy is reflected in a greater demand for currency than for deposits. However, with the banks opening branches in rural and semi-urban areas, rising interest rates offered on time deposits and liberalization of facilities to holders of these deposits, the increase in bank deposits has been greater in time than in demand deposits. More recently, the proportion of deposit money to total money supply has shown a rise indicating, among other factors, greater resort to bank money for mediating transactions.

III. Monetary Policy Before Independence

The policy of the period before independence may, broadly, be divided into the period before and after the creation of the Reserve Bank of India in 1935 as the country's Central bank. In the pre-1935 phase there was, strictly speaking, no monetary policy in the sense of a purposive regulation of the quantity and price of money *i.e.*, the structure and level of interest rates, to sub-serve objectives of general economic policy. This was not only because of the absence of a Central bank acting as a unified monetary authority but even more because of India being a dependency which meant that the maintenance of a stable relationship with the currency of the metropolitan power was, as indicated in an earlier section, a prime criterion of monetary policy irrespective of its effects on internal economic activity. Consequently, most issues of currency policy revolved round the choice of the monetary standard and the maintenance of an appropriate rate of exchange. These issues were forced to a head when India, following the United Kingdom, left the international gold standard in September 1931, and the rupee was linked to the pound sterling at 1s. 6d. Even then the really significant question was not the choice of the standard since it was not practicable at the time to link the rupee either to gold or to establish it as an independent currency. The former alternative was ruled out not only because of the inadequacy of India's monetary gold reserves and the shrivelling up of the international gold bloc but also because the retention of the gold standard would have aggravated the economic depression in the country. Likewise, an autonomous rupee, apart from being not practical politics for a non-self-governing country, would not have been feasible in the absence of a central ban. Consequently, the effective choice of a monetary standard was limited to some variant of the sterling standard which was not unjustified because the major portion of India's external transactions was with the sterling area apart from the close financial links with Britain.

The really controversial issue was, therefore, whether the maintenance of the rate of exchange unchanged at 1 s. 6 d. was justified. Although

the linking of the rupee with sterling amounted to a depreciation of the rupee in terms of gold to the extent of about 30 per cent, the competitive advantage to Indian exports was offset by the larger depreciation of the currencies of India's competitors, notably Japan, Argentina and Australia. Generally, Indian public opinion favoured a moderate devaluation of the rupee in terms of sterling as an anti-depression measure; the currency controversy was limited mainly to this question of an adjustment in the exchange ratio to 1 s. 4 d. as against maintenance of the *status quo*. The official justification of the existing ratio was based on the ground that India as a debtor country on external account benefited by the *status quo* as devaluation would have necessitated raising of larger amounts in domestic currency to meet the Home Charges of the order of about £30 million due every year to the United Kingdom.

As measured by the relative price levels in India and the U.K., it appears that the rupee was for a time undervalued in terms of sterling. This undervaluation of the rupee in terms of sterling (placed by different authorities within a range of 10 to 31 per cent) meant a rise in the rupee price of gold which therefore was one of the contributory factors to the large-scale export of gold from India estimated at about Rs. 300 crores over the period 1931-37. This reversal of the historical role of India as a habitual net importer of gold could not, however, be wholly or largely attributed to the under valuation of the rupee. The extensive dishaording of privately held gold reflected the distress sales by agriculturists who were unable to meet their monetary commitments like tax and interest payments, or even to maintain their customary standards of living, due to the fall in agricultural prices. In effect, these gold exports meant a monetization of a sterile asset although some sections of public opinion advanced official purchases to strengthen currency reserves. But in view of the prevailing uncertainty about the future of the international gold standard and the commitment to the sterling exchange standard, currency policy did not reflect a definitive position on gold exports.

The maintenance of a fixed rate of exchange naturally precluded an expansionist monetary policy aimed at stimulation of the economy through finance of public works, etc. Even the creation of the Reserve Bank in 1935 did not make any material difference to this aspect of currency policy as the bank was statutorily committed to buy and sell sterling within the limits of 1 s. 6-3/16 d. and 1. s 5-49/64 d. subject to minimum transaction of £10,000 or its evalvalent.

The Reserve Bank was given powers to regulate cred't through the bank rate and open market operations, but it did no exercise them to any appreciable extent during its early years because of the general slackness of demand for credit, the comfortable reserves position of banks which could always be supplemented by borrowings from the Imperial Bank of India or from their overseas head office in the case of

Exchange Banks. The first official bank rate at 3½ per cent was announced on July 4, 1935. The rate was subsequently reduced to 3 per cent with effect from November 28, 1935, at which level it remained steady for nearly sixteen years. Open market operations were also of a very modest character and, apart from supporting public borrowing operations and the gilt-edged market, they were used to relieve seasonal stringency in the money market through purchase and sale of Government securities and sterling bills.

Although the Reserve Bank could not exert much influence over the credit situation, judging purely by the magnitude of its advances to banks and open market operations, its capacity to meet seasonal monetary stringency was a distinct improvement over the pre-1935 system when such stringency could be relieved only by borrowing additional currency from Government at high rates of interest.

Monetary policy during the war years (1939-45) was comparatively passive in the face of the huge inflationary increase in money supply originating as a cumulative result of budgetary deficits, military expenditure of the British and the Allied forces in India and the favourable balance of trade. Given the current requirements of war expenditure in rupees, the Reserve Bank had to issue large amounts of rupee currency against sterling and *ad hoc* Treasury bills of the Government of India as provided in its Act. But the mere fact that the additional currency had adequate foreign cover in the form of sterling did not alleviate the inflationary impact of the expansion of money. The war-time inflation reflected the gap between a comparatively inelastic supply of essential goods, a large portion of which was being increasingly appropriated for defence requirements, and the rise in effective demand due to rising employment and incomes. Besides, the decision to finance the war on the basis of cheap and stable money meant relinquishing the use of the interest rate as a weapon of monetary policy though it is doubtful whether the excessive liquidity of the banking system or even of the economy as a whole could have been absorbed merely by stepping up yields on Government securities.

IV. Monetary Policy Since Independence

Despite the essential similarity of the basic economic framework for its operation in the two periods, Indian monetary policy since independence presents some significant contrasts to its role in the pre-independence period. The general identity of the economic environment for monetary policy in the period before and after independence lies in the largely unaltered character of the broad structural features of the economy bearing upon the conduct of monetary policy like the considerable extent of the non-monetized sector, the predominance of currency in money supply, the extent of seasonality in currency circulation and credit and the

dichotomy of the organized and unorganized sectors in the money market. However, there has been a considerable change both in respect of the institutional framework of monetary policy and its more active use to influence the tempo and tenor of economic development. Thus, for one thing, there has occurred an enlargement of the scope, effectiveness and range of employment of the instruments of quantitative and qualitative credit control vested in the Reserve Bank under its own Statute as progressively amended as well as in terms of the Banking Companies Act, 1949, and its successive amendments.

In the period immediately after independence, the role of monetary policy continued to be largely subsidiary to sustaining the cheap money policy which was more or less an inheritance of the phase of war finance. Consequently, the bank rate remained constant at 3 per cent and the open market operations of the Reserve Bank which were aimed at a general support of the gilt-edged market resulted in large net purchases from the banking system. The maintenance of a fixed pattern of yields meant monetization of the bank-held Government debt through large-scale purchases by the Reserve Bank. In the context of the ample cash reserve position of commercial banks, it enabled the banking system to be virtually independent of Central bank credit.

It was the inflationary conditions generated in the wake of the Korean War boom in 1951 that led to the emergence of credit control as a purposive instrument of economic policy. To begin with, the bank rate which was unchanged at 3 per cent ever since 1935 was raised to 3½ per cent in November 1951. In itself this measure would not have been of much consequence considering that in India, in the absence of a developed bill market, the bank rate had not functioned as a rediscount rate. Rather, its customary significance as an advances rate against approved collateral was enhanced by a simultaneous change in open market policy. To make the rise in the bank rate effective, the Resesve Bank also announced that it would not buy Government secrities from banks as a matter of course to meet their requirements of seasonal expansion of credit, save in exceptional circumstances, but make advances against the collateral of Government securities. Soon after this a Bill Market Scheme was formulated under which banks could convert advances to their clients into usance bills and borrow against them from the Reserve Bank. This provided a convenient mechanism for controlling the flow of Central bank credit to commercial banks while enabling them to meet their legitimate credit requirements. The scheme was initially subsidized by offering a rate lower by ½ per cent than that on Government securities. Subsequently, in 1956, this rate was raised in two stages to 3½ per cent.

But even more than the Korean War boom phase, the commencement of the Second Five Year Plan witnessed the progressively growing im-

portance of monetary policy. The pressure of investment expenditure of the Second Five Year Plan witnessed the progressively growing importance of monetary policy. The pressure of investment expenditure under the Plan led to a gradual upward rise in market rates of interest; the bank rate too was raised to 4 per cent in May 1957. Likewise, the effective rate of borrowing under the Bill Market Scheme was increased to 4.2 per cent with an increase in the stamp duty on usance bills. The introduction, in October 1960, of a system of borrowing quotas for banks under graded lending rates by the bank was yet another landmark in the gradual sophistication of monetary policy. Since then this system has been retained with appropriate variations and modifications in keeping with changing requirements. It is a system which aims to reconcile the obligations of the Reserve Bank as a lender of last resort as well as the controller of credit with its role as promoter, through preferential rates of lending, of special sectors or purposes like agriculture, small-scale industries, co-operatives, exports, etc. Its mechanism consists of fixation of quotas, based on statutory reserves, for borrowing by banks from the Reserve Bank whether against Government securities or under the Bill Market Scheme at graded slab rates, with provision for borrowings above the quota at higher rates; lending for special preferential purposes is charged at the lowest slab rate, *viz.*, the bank rate. Since the need for borrowing by banks is specially acute during the busy season, the increase in the Reserve Bank's average lending rate and ceilings on banks' borrowings help to regulate the expansion of credit. Initially, there were three slabs with quotas fixed for the first two slabs, for which the prescribed rates were the bank rate and one per cent above the bank rate, respectively, whereas there was no limit to borrowing for the third slab at 2 per cent above bank rate. The number of slabs and the rates of interest applicable thereto have changed from time to time. A change of some importance in the system was, however, introduced from November, 1962 when lending above the quotas became restrictive, being subject to a detailed assessment of individual cases by the Reserve Bank. Till September 1964, there were two slabs of lending rates within the quotas, at 4½ and 6 per cent, respectively and a third slab for special accommodation of a discretionary nature at 6½ per cent.

Effective September 25, 1964 the slab system of lending rates was replaced by the differential rates scheme and concurrently the Resesve Bank evolved the concept of net liquidity ratio with a view to preventing banks from circumventing the requirements of the statutory liquidity ratio by borrowing against eligible paper. The net liquidity ratio is defined as total of bank's cash balances with the Reserve Bank and other banks in current account and all investments in approved securities less its total borrowing from the Reserve Bank, the State Bank and the Industrial Development Bank of India (I.D.B.I.).

Under the differential rate scheme, as long as the net liquidity ratio was at or above 28 per cent, the Reserve bank's accommodation was made available to banks at the bank rate. For every percentage drop in the ratio, the cost of borrowing on the entire amount moved up by ½ per cent. In September 1964, the bank rate was raised from 4½ per cent to 5 per cent. Simultaneously, the Reserve bank fixed the maximum rate of lending for bigger banks at 9 per cent, which was raised to 10 per cent in February 1965, when the bank rate was also stepped up to 6 per cent.

The system as thus envisaged had a self-correcting element in as much as, with every increase in borrowing from the Reserve Bank, the rate at which a bank could make further borrowing rose progressively, while, at the other end, it was constrained by the ceiling rate on its own advances to customers. This, in effect, established the principle of differential rates on borrowings from the Reserve Bank, depending on the individual bank's liquidity position.

Broadly, the system has continued to-date with certain modifications from time to time. Thus, in February 1965, the minimum liquidity ratio required to qualify for bank rate accommodation was raised from 28 per cent to 30 per cent. In November 1965, the rate of escalation for lending was also raised from ½ per cent to 1 per cent for every drop of 1 percentage point or fraction thereof from the minimum liquidity ratio of 30 per cent. Certain concessions have also been granted from time to time in respect of the net liquidity ratio. Thus, refinance to priority sectors such as food procurement, defence supplies and export packing credit was provided at bank rate irrespective of net liquidity ratio. For the 1966-67 busy season banks were given additional refinance facilities at bank rate for an amount equivalent to 10 per cent of the actual net liquidity ratio as at the end of 1966 slack season. Provision was also made for the Reserve Bank to charge a penal rate of 10 per cent for any borrowings in excess of the borrowings at the bank rate.

In view of the recessionary trends in certain sections of the industry, the Reserve Bank's refinance policy was selectively liberalized since August 1967. Thus a preferential rate of 4½ per cent was applied for export packing credit for engineering and metallurgical products. With a view to stimulate the economy, concurrently with certain fiscal measures announced in the budget for 1968-69, the Reserve bank also initiated certain monetary measures. The Bank rate was reduced from 6 per cent to 5 per cent in March 1968, and the maximum rate on bank's advances to customers was lowered to 9.5 per cent from 10 per cent.

Since October 1968, a uniform rate of 4½ per cent was charged, irrespective of the net liquidity ratio for the total short-term advances to agriculture and small-scale industries and not merely the increments over the base periods as before. In February 1970, certain concessions

granted with respect to priority sectors were withdrawn as credit had expanded at a faster rate than warranted by the real trends in the economy. Thus, although changes were made from time to time in the differential rate system of lending based on the net liquidity ratio, the basic element of this policy, namely, the application of a penal rate in the event of a fall in the liquidity ratio below 30 per cent, continued to be in operation.

The fact that banks have had frequent resort to borrowings from the Reserve Bank against Government securities and under the Bill Market Scheme is a significant index of the effectiveness of the bank rate-cum-borrowing quota technique of Central banking in India.

TABLE IV

Reserve Bank Credit to Scheduled Banks

(In crores of Rs.)

Outstanding as on last Friday of March	*Against usance bills and/or promissory notes*	*Other Advances*	*Total*
1951	—	12	12
1956	29	35	64
1961	45	50	95
1966	53	23	76
1970	78	160	238

However, the effectiveness of the bank rate technique is still limited by the lack of integration and cohesion in the money market. Similarly, the use of open market operations has been subject to varying limitations since the inception of the bank. In the early years the statutory restrictions on the volume and maturity of rupee securities which the bank could hold in its portfolio as well as the comparatively under-developed state of the security market inhibited recourse to open market operations. The pursuit of cheap money in the war and post-war years necessitated virtually unlimited purchase of securities from the banking system. It was only when 'cheap money' was replaced by 'regulated money' following the rise in the bank rate in 1951 that it was possible to regard open market operations, as observed above, as a purposive instrument of policy through the extension of discriminating support to the gilt-edged market. This was reflected in the emergence of moderate net sales in contrast to net purchases in the earlier years. Open market operations have been used increasingly as an adjunct to Government borrowing operations, primarily in the maintenance of orderly conditions in the gilt-edged market rather than to influence the cost or availability of credit. However, their use for meeting the seasonal need of banks for reserves illustrates their potential significance in the Indian context as a flexible instrument to regulate the monetary climate.

TABLE V

Open Market Operations of the Reserve Bank of India

(In crores of Rs.)

Financial Years	*Net Purchases* (—) *Net Sales* (+)
1945 to 1951	— 281.06
1951 to 1956	+ 55.47
1956 to 1961	+ 72.26
1961 to 1966	+ 55.43
1966 to 1970	+ 218.93

Although there is at present no statutory restriction on either the volume or maturity of Government securities which can be held by the Reserve Bank in its portfolio, in practice open market operations have been confined to medium and long-dated securities in the absence of a developed market for Treasury bills.

The inherent limitations of the bank rate and open market operations as instruments of monetary policy in India underline the importance of other weapons, notably the variation of reserve requirements, selective credit controls and moral suasion. The power to vary the statutory reserve, and hence the cash base of commercial banks,is peculiarly suited to Central banks in under-developed money markets where the classical weapons of bank rate and open market operations have comparatively less scope. It was not until October 1956 that the Reserve Bank acquired the necessary powers to vary (a) the reserve ratios of banks between 5 and 20 per cent of demand liabilities and 2 and 8 per cent of time liabilities and (b) the proportion to be maintained as reserves of the increase in deposits after a certain date upto 100 per cent of the increase in deposits subject to the aforesaid overall maximum. It was, however, not until March 1960, that the Reserve Bank had occasion to employ these new powers when banks were called upon to maintain with the bank 25 per cent of the increase in deposit liabilities over and above the minimum statutory reserves. The requirement was raised to 50 per cent of the additions to deposit liabilities after that date. The impounded deposits were subsequently released in two instalments (March 1960 and January 1961) as part of the changed credit policy of the bank consequent upon the introduction of the three tiers of lending rates. As from September 1962, the minimum statutory reserve requirements were unified at 3 per cent for both demand and time liabilities taken together and made variable upto 15 per cent. The merger of the differential ratios for demand and time deposits is indicative of the growth in volume of time deposits and even more of the fact that, in practice, these deposits tend to have a maturity shorter than their formal period of deposit.

But the distinctive feature of Indian monetary policy has been the extensive resort since 1956 to qualitative controls, as distinct from the

foregoing quantitative weapons, notably the flexible use of selective holding of commodities in short supply or else to restrain excessive borrowing from banks in the form of clean advances (*i.e.*, without formal security or collateral) or against the security of assets such as stocks and shares. These selective credit controls have mainly taken the form of stipulation of margin requirements and directives to maintain aggregate credit against particular commodities (mostly foodgrains, oil-seeds, sugar, cotton and jute) within specified limits. The implementation of these controls has its problems in a banking system with a very wide branch network and regional diversities. But, on the whole, there has been responsive co-operation on the part of the banks and selective controls have played a salutary role in maintaining orderly conditions in commodity markets.

Formal credit controls, whether quantitative or qualitative, have often been supplemented by recourse to moral suasion through informal consultation with and exhortation of the banking community by the Governor of the Reserve Bank. This technique has a certain efficacy in view of the concentration of the major part of the resources of the banking system in a comparatively small number of banks but it also has its limits. It has worked particularly well where the climate for its use with regard to the interests of the banking system is propitious.

In retrospect it may be said that the period since independence has, on the whole, been notable for the gradual emergence of an articulate and flexible monetary policy aimed at reconciling the requirements of an expanding volume of money to finance the expansion of output while restraining the use of credit for unproductive and non-essential purposes. While the onus of maintaining general economic stability does not rest exclusively or even largely on monetary policy, it can be said with some justification that monetary policy has been operated with a view to ensuring a reasonable degree of stability consistent with the needs of economic development.

V. External Value of the Rupee

The preceding paragraphs have dealt with the evolution of the rupee primarily in the context of internal economic developments. But the role and significance of a currency unit is no less important in terms of its use in international transactions; in this context, it is the external value of the currency, *i.e.*, its relation with other currencies, that is of interest. As indicated earlier, for many decades the internal aspects of currency policy in India were largely subordinated to its external aspects. This was a logical corollary to the statutory link of the rupee with sterling. During the heyday of the

international gold standard, the rupee was, through its link with sterling, on a gold exchange standard. With the realization of the importance of internal monetary management and a rejection of the automaticity implied in the gold standard arrangements, there was virtually a world-wide abandonment of the gold standard. In September 1931, the movement was sparked when the U.K. went off the gold standard. For India, however, the gold exchange standard was replaced by a sterling exchange standard which continued to detract from the full freedom of monetary management. Thus, the rupee sterling rate set, as mentioned earlier, after much controversy at 1 s. 6 d. per rupee in April 1927 (in terms of the Currency Act) remained unchanged through the maelstrom into which currencies were thrown following the Great Depression of 1929-31 and was the ratio that was also formally adopted in the Reserve Bank legislation (Sections 40 and 41). This rate continued to be in force until June 6, 1966, when the rupee was devalued in terms of all currencies including the sterling.

Meanwhile, however, a major change has occurred in the theoretical and legal basis of the ratio in the wake of independence as well as India's membership of the International Monetary Fund (I.M.F.). The par value of the rupee is now set in terms of gold as required by the I.M.F. Articles of Agreement. The Reserve Bank of India Act was accordingly amended in 1947 without specifying any particular rate of exchange but making it subject to determination by the Central Government having regard to its obligations to the I.M.F. On India joining the I.M.F., the rate was initially fixed at 4.145 grains of fine gold per rupee corresponding to the 1 s. 6 d. rate to sterling. When the pound sterling was devalued by 30.5 per cent in September 1949, the rupee, like the currency of most sterling area members, was also devalued to a similar extent and the par value was fixed at 2.880 grains of fine gold per rupee. Thus, while in terms of gold the rupee was devalued from Rs. 3.31 to Rs. 4.76 per dollar, the rupee-sterling ratio was unchanged at 1 s. 6 d.

The rupee was again devalued by 36.5 per cent on June 6, 1966, so as to bring domestic prices into alignment with external prices. In terms of the U.S. dollar, the rupee was devalued from Rs. 4.76 per dollar to Rs. 7.50 per dollar. The new par value of rupee works out to 1.828 grains of fine gold as against 2.880 grains of fine gold heretofore. The value of the rupee in terms of sterling was also accordingly changed from 1 s. 6 d. to 11-3/7 d. Unlike the previous devaluation in 1949, which was only in terms of non-sterling currencies, the devaluation in 1966 was in terms of all currencies.

Though the rupee is now formally linked to gold in terms of the I.M.F. Articles, in practice, the link with sterling continues to be important for historical reasons as also because the larger portion of India's external transactions has been and is financed in sterling. The major portion of

India's reserves is maintained in London. India is a member of the Sterling Area group of countries, which involves a pooling of exchange reserves of the members in London and the financing of the bulk of their foreign trade in sterling; further, while each country has the right to determine its rate of exchange, the exchange parity is maintained through operations in spot and forward sterling.

The considerations which guide a country in the choice of an appropriate par value are, briefly, that it should enable the currency unit to perform adequately its functions as a medium of international payments, *viz.*, financing the stream of imports of goods and services needed by the economy through an adequate flow of exports, visible and invisible. This would have to take into account the pattern of relative costs, incomes and prices between the country and the outside world and, more particularly, the pattern and structure of its external trade. Obviously, no country can afford to support an exchange rate which is clearly out of alignment with international costs, incomes and prices and which makes it difficult to achieve external equilibrium over time. Implicit in the above is the assumption that a country's demand for and supply of foreign exchange would be decided by the free play of market forces. In practice, however, official intervention in the market process is widespread whether by tariffs, subsidies or import and other controls and it is, therefore, difficult to assert that any particular rate is the appropriate one for maintaining equilibrium, allowing for short-term variations, in the exchange market. Further, the experience of the nineteen thirties showed that countries, in their pursuit of policies designed to adjust their internal economies free from the constraints of exchange rate rigidities in automatic standards, often allowed exchange rate variations to be used as a protective device. This was a period of competitive exchange depreciation and international currency disorder. The I.M.F., set up after the war, with India as a founder member, seeks to bring about order in international monetary affairs and, for this purpose, aims at preventing unilateral actions like competitive exchange depreciation. The objectives of the Fund are not only to bring about stable exchange rates but fixed rates (as against floating rates) and also unitary exchange rates (as against multiple rates). The rupee rate is in conformity with these objectives. The Fund arrangements, however, by no means imply a reversion to the rigidities in exchange rate structure of earlier monetary standards. In fact, while its Articles provide for the liberalization of trade and payments, they also provide for a change in a country's exchange rate in consultation with the Fund to correct fundamental disequilibrium.

In terms of the Fund agreement, member countries have to maintain the par value within limits of 1 per cent on either side of parity. In keeping with the sterling area practice, in India this takes the form of the

Reserve Bank's readiness to buy and sell spot and forward sterling within narrow limits. The bank buys both spot and forward sterling (upto 6 months) from authorized dealers (scheduled banks authorized to deal in foreign exchange) at 1 s. 6 d. per rupee. The selling rate for spot sterling is 1 s. 5-63/64 d., the rate for forward sterling being slightly lower at 1 s. 5-31/32 d. After devaluation, the buying rate for delivery within six months was changed to £4.7619 per Rs. 100 and the selling rate for ready delivery to £4.7467 per Rs. 100. Forward sales by the Reserve Bank of India were discontinued from June 10, 1966. Following the change in the per value of the pound sterling on November 18, 1967, the actual rates at which the Reserve Bank of India bought and sold sterling were also revised. The buying rate for delivery within six months (including spot) was changed to £5·556 per Rs. 100 and the selling rate for ready delivery to £5.538 per Rs. 100.

The narrow spread between the Reserve Bank's buying and selling rates for spot sterling and its provision of forward cover affords a convenient arrangement for authorized dealers to convert rupees into sterling and *vice versa* and helps them in turn to meet the requirements of the public at fine rates thereby ensuring that the rupee-sterling rates move well within the terms set by the Fund Agreement. This has also enabled the authorized dealers to buy sterling at rates fixed by the Foreign Exchange Dealers Association (comprising the banks authorized to deal in foreign exchange); these rates are fixed in consultation with the Reserve Bank. Exchange rates in India for non-sterling currencies are governed by the prevailing rates in the London Exchange market for those currencies *vis-a-vis* sterling.

One of the primary objectives of the I.M.F. is to free international payments on current account from control and to assure full convertibility for currencies earned in current transaction. The Fund's Articles recognize that restrictions on capital transfers would be necessary, but they also provide for the transitional provisions (Article XIV) whereby countries can maintain restrictions even on current transactons. While the primary purpose of this Article was to enable countries to adjust their economies during the post-war transition, its provisions have also been helpful to countries like India experiencing balance of payments difficulties during a period of growth. In terms of the Fund Agreement (Article XIV), countries are required to consult with the Fund each year on the nature and extent of exchange restrictions and the progress achieved in regard to removing discriminatory restrictions.

While the exchange restrictions now in force in India are thus permitted by the I.M.F., the restrictions themselves date back to the outbreak of World War II in 1939 when exchange control was introduced under the Defence of India Rules both as an instrument of economic warfare and to conserve and restrict the use of scarce foreign (non-

sterling) currencies for essential purposes.

In the post-war years with large deficits in India's balance of payments, it has been necessary to extend the war-time exchange controls on a permanent basis. Accordingly, the Foreign Exchange Regulation Act of 1947 was enacted in terms of which the Government and the Reserve Bank of India are empowered to control all transactions involving foreign exchange, including foreign securities and, among other things, prohibit dealings in foreign exchange by other than authorized dealers at rates other than those fixed by the Reserve Bank. This Act is administered by the Reserve Bank in accordance with the general policy laid down by the Government in consultation with it. With the general shortage of foreign exchange, including sterling, it became necessary to extend in 1947 the control to sterling area countries also. With mounting imports under the successive plans for economic development, it remains necessary to ration foreign exchange so as to distribute current earnings of foreign exchange among competing demands so as to be of the maximum advantage to the nation.

B. PRICES

This section presents a historical review of the broad movements of prices in India since the middle of 19th century, their more important causal factors and economic consequences. Apart from the limitations imposed by the difficulty of constructing accurate price indices, the absence of adequate and consistent time series of price data precludes meaningful comparisons of prices over a long period of time. The emphasis is, therefore, on the more salient aspects of price fluctuations.

The history of prices in India may be conveniently divided into six well-marked phases, namely:

(a) 1860s until early 1890s;
(b) 1890s until World War I;
(c) World War I and early post-war period (1915-20);
(d) Inter-war period (1920-1939);
(e) World War II, post-war transitional period and post-independence period (1939-1951), and
(f) The period of planned economic development (1951 onward).

(a) **1860-1893:** The 1860's are a convenient starting point. Not only does the earliest available general index relate to 1861 but the three decades following are also roughly the period when the Indian economy and its domestic price and income structure, which had hitherto been comparatively insulated, were increasingly exposed to external influences. The earlier part of this period was marked by cyclical movements with

phases of rising prices alternating with those of price declines. This was especially so until 1880; the Indian price level was influenced not only by domestic and natural causes such as the vagaries of the monsoons but by external factors such as the American Civil War, the opening of the Suez canal and fluctuations in world prices of the precious metals.

TABLE VI

Weighted Index Number (100 Articles)

Base: 1873 = 100

Year		Year	
1861	93	1880	109
1865	109	1885	116
1870	107	1890	117
1875	96	1893	129

The initial phase (1861-66) witnessed a steep rise in Indian prices. The American Civil War and the consequent diversion of demand for cotton to exports of this commodity from India set off a boom in cotton prices in India which led to a large influx of precious metals to the country and a considerable volume of silver coinage. A general rise in the price level was the result, the index increasing by over 17 per cent to 109 in the 4 years upto 1865. A down-trend in world prices followed the end of the Civil War in the States and the expansion in world trade (helped also by a fall in the freight rates). Between 1865 and 1875 prices receded by 12 per cent, the index falling to 96. But for a brief spell between 1876-79, when prices rose by about 34 per cent, almost exclusively in respect of food articles following famine conditions over vast areas in India, prices on the whole continued their decline until the early 1880s. While the fall in Indian prices was to a large extent the counterpart of a world-wide trend, the downward movement in India was halted earlier than abroad as a result of a fall in the value of the rupee; the depreciation of the rupee was associated with a sharp fall in the price of silver following a large increase in its production. The fall in the value of silver had commenced even in the mid-seventies but after 1883 the rate of depreciation in the value of silver was accelerated. By 1893 the price index had risen once again to 129.

(b) **1893-1914**: The closure of the mints in India after 1893 following the Report of Herschell Committee, referred to in an earlier section, brought in another interlude of decline in prices till about 1899 when the index touched 121; the exchange rate was stabilized at 1 s. 4 d. per rupee in that year.

TABLE VII

Weighted Index Number (110 Articles)

Base: 1873 = 100

1893	129	1910	150
1899	121	1914	187
1900	143		
1905	135		

From about the turn of the century until the outbreak of World War I, prices were once again generally on the increase and especially so after 1905. The position was considered sufficiently serious to warrant the appointment by the Government of India in 1910 of the Prices Enquiry Committee under the chairmanship of K. L. Datta to examine the causes for the price rise in India. The committee noted that prices in India during the quinquennium 1907-11 were 40 per cent higher than in 1894-98. This rate of increase, the committee pointed out, was higher than in several countries including the U.K. and the U.S.A. where the price increase was 21 per cent and 38 per cent, respectively. The rise in Indian prices was over a wide commodity range and covered both export staples and consumer goods. Foodgrain prices rose by 30 per cent, raw cotton and jute by 58 per cent, metals by 22 per cent. The committee cited both internal and external factors as being responsible for the rise in the price level. The rise in world prices during this period due mainly to the wider use of gold as monetary metal and the pressure of demand arising from military expenditure in several countries was communicated to India through the fixed exchange rate. Internally, although production was increasing, it was not large enough to match the rising demand due to expansion of population and the increasing purchasing power. The excessive coinage of rupees inconvertible into gold was a major factor making for higher prices. Thus, the volume of currency rose between 1898-1913 by nearly 99 per cent and prices by 58 per cent.

(c) **World War I and Early Post-War Period (1914-1920):** With the outbreak of World War I the pace of price increase accelerated sharply. In the initial period of the war, however, the rise in prices in India was slower than in the belligerent countries due to war-time restrictions on export of goods and import of the precious metals. The rise in the domestic price of silver and the fixed rupee sterling exchange rate were once again the principal factors in bringing about the steep rise in prices. The expansion of money circulation was particularly sharp after 1917; by 1920, the Calcutta index of prices had risen by over 100 per cent compared to the level of 1914.

(d) **The Inter-War Period (1920-39):** While the purchasing power of the rupee was thus declining internally, its external value was, however, rising as sterling depreciated at a faster rate; consequently, at the end of 1919 and early in 1920, the rupee value was about 2s. 4d. The adoption of the 2s. rate for the rupee in accordance with the Babington-Smith Committee's recommendations and the deflationary currency policy following the maintenance of rigid exchange ratio were super-imposed on the post-war decline of prices abroad which was communicated to India. By 1929 Indian prices had moved down by nearly 30 per cent.

compared to 1920. With the onset of the Great Depression (1929-32), Indian prices declined further sharply and by 1932 prices had dropped by another 35 per cent; this was a rate of decline much more severe than in many other countries.

TABLE VIII

Index of Wholesale Prices (1929=100)

Average for the year	*India (Calcutta)*	*United Kingdom*	*U.S.A.*	*Australia*
1930	82.3	87.5	90.7	88.4
1931	68.0	77.0	77.0	79.2
1932	64.5	74.9	68.0	78.3
1934	63.1	77.1	78.7	81.6
1936	64.5	82.7	84.8	85.6
1937	72.3	95.2	90.6	91.9
1938	67.6	88.8	82.5	92.2

External influences were aggravated by an orthodox exchange policy; nor was domestic monetary and fiscal policy geared for reviving economic activity. India also felt the adverse impact of a worsening of the terms of trade; agricultural commodities (which constituted the bulk of her exports) suffered larger price declines than did industrial products (her major imports).

The trough of the Depression had been reached in 1932 and from then on there was a steady recovery in prices with the revival of production and trade. The rearmament programmes in several countries abroad provided a further stimulus. By 1937, the Calcutta index had risen by 12 per cent compared to 1932. The middle of 1937 witnessed a recession once again in business activity in the United States and other countries; though this recession proved short-lived, Indian prices continued to decline and, by 1938, the index (base: 1929 = 100) had once again dropped to 68 around which point it hovered until the summer of 1939.

(e) World War II and Early Post-war and Post-Independence period (1939-1951): The outbreak of the Second World War in September, 1939 marked the commencement of yet another phase of price increase. With the progressive mobilization of resources for the war, prices tended to rise; the super-imposition of high and rising demand on a relatively inelastic supply of essential goods and the diversion of commodities from civil to military uses exerted a steady pressure on wholesale prices and the cost of living. Especially after 1941, with India becoming a base of operations and the larger expenditure incurred here on behalf of Allied forces and with the use of inflationary methods to finance war expenditure, the general price level took a sharp upturn, despite the imposition of rationing and of price controls on a wide range of commodities. Over the war period as a whole, the general price level rose by 143 per

cent, the increase being more pronounced in the case of food articles, export commodities and agricultural products in general.

TABLE IX

Index Numbers of Wholesale Prices

(Base: Week ending August 19, 1939 = 100)

	General Index	*Food and Tobacco*	*Other Agricultural Commodities*	*Raw Materials*	*Manufactured Articles*	*Chief Articles of Export*
Last week of						
August 1939	100.3	100.3	100.7	100.2	100.0	100.6
„ 1940	108.4	103.2	98.2	118.9	109.3	106.3
March 1941	118.8	108.1	112.4	125.9	131.7	116.7
Average 1942	144.2	130.5	116.8	162.4	162.5	138.7
„ 1943	213.5	247.8	215.3	172.0	227.0	210.4
August 1945	244.1	239.4	268.0	210.8	243.5	248.4
%variation August 1945 over August 1939	143.4	138.7	166.1	110.4	143.5	195.8

This order of increase in the general index was, however, much below the rate of monetary expansion; this was partly due to the price controls which made the inflation 'latent' rather than 'open'. This monetary expansion was, indeed, backed by sterling assets but this afforded no relief from inflationary pressures as these foreign assets could not be transformed into real resources by enlarging the import of commodities owing to war-time shortages of shipping space, diversion of resources to defence uses and the loss of Burmese rice following the Japanese occupation of Burma.

TABLE X

Money Supply and Prices — 1939-51

	Money Supply (Rs. crores)	*Wholesale Prices Annual Averages (Base: Week ending August 19, 1939=100)*	*Working Class Cost of Living Index, Bombay (Base: August 1939=100)*
1939	322.8	125.6 (Sept.-March)	103 (Aug.-Dec.)
1940	398.5	114.8	107
1941	455.6	137.0	118
1942	616.4	171.0	150
1943	1,035.8	236.5	219
1944	1,575.7	244.2	226
1945	1,875.7	244.9	224
1947	2,128.7	308.2*	268
1949	1,928.7	385.4*	291
1951	1,965.9	434.6*	314

Note: Data on money supply relate to last Friday of March. Data on wholesale prices and working class cost of living relate to financial year averages with 1939 relating to 1939-40 and so on.

*Base August 1939=100.

The cessation of the war did not alleviate the price situation. The continuance of heavy governmental expenditure and the maintenance of cheap money led to the persistence of inflationary conditions which was aggravated by crop failures. Between September 1945 and August 1947 wholesale prices rose by over 20 per cent and the cost of living index (Bombay) by 18 per cent. The dismantling of war-time controls over several essential consumer goods as well as the upward revision of controlled prices in respect of others apparently aggravated a basically untenable price situation through activizing the latent inflation.

The economic consequences of country's partition accentuated the pressure on prices; the Indian Union became a net importer of foodgrins, jute and cotton. The increase in expenditure on defence and rehabilitation and the experiment of food decontrol (between November 1947 and July 1948) further pushed up prices; from August 1947 to July 1948 prices increased by 29.3 per cent. There was a temporary recession in prices in the second half of 1948 and the early part of 1949 though the decline only partly offset the increase that occurred during the phase of decontrol. With the devaluation of the rupee, along with sterling in September 1949, prices again started to rise, the outbreak of the Korean War in 1950 providing a further powerful stimulus to his trend. Once again, the rise in commodity prices all over the world was communicated to India, though the degree of price increase here was somewhat less. The peak was reached in April 1951 when the index of wholesale prices touched 462.0 — a rise of 16.3 per cent compared to the pre-Korean War level and of 18.8 per cent compared to the pre-devaluation level. Food articles and industrial raw materials prices in particular rose to inordinately high levels.

At the commencement of the First Plan, the Indian price level was thus 55.7 per cent higher than at the time of independence, and 90.6 per cent higher than at the end of World War II.

(f) Period Of Planned Economic Development (1951-1969): Given the objective of development with stability, price policy in a planned economy has to ensure that absolute and relative movements of prices accord with Plan priorities. In particular, given the pattern of consumption, it is necessary to avoid any excessive increase in the prices of essential items of consumption, in particular, of foodgrains. The role of price policy is crucial in that stepping up the rate of development inevitably sets in train pressure on prices. The behaviour of prices in the First and Second Plans must, therefore, be viewed against this perspective.

As mentioned above, the price level in India at the commencement of the First Plan represented the peak of the post-Korean price increase. With the collapse of the post-Korean commodity boom as well as with the implementation internally of corrective fiscal and monetary policies,

prices fell sharply in the early months of 1952. The decline in Indian prices in this period was sharper than in sveral countries abroad, and by March 1952, the wholesale index had moved down by 18.5 per cent from the April 1951 level. After remaining generally steady around this level for about two years, prices fell sharply in 1954-55 following the bumper harvests of 1953 and 1954. Between March 1953 and March 1955 the overall index declined by 8 per cent and food prices in particular fell by about 19 per cent necessitating price support operations by Government. Whereas the decline in prices in 1952 was partly the result of a contractionist monetary policy, the decline in 1954-55 occurred at a time when money supply increased and indicated that the expansion of aggregate monetary demand was not sufficient to absorb the increase in overall supplies, especially of the agricultural commodities. By July 1955, the decline was arrested and in fact reversed, marking the recommencement of a phase of price rise, and over the whole of the last year of the First Plan prices increased by 18 per cent. The level in 1956 was, however, still 22 per cent below that at the beginning of the Plan. The all india cost of living index (1949 = 100) also varied considerably over the period of the First Plan but at the end was only 3 per cent below that at its beginning (Table XI).

The Second Five Year Plan thus started, as did the First Plan, against the background of rising prices; unlike the earlier period, the primary impetus to the rise in prices in 1956 was internal. Lower agricultural output, combined with rising investment expenditures, reflected in a sharp monetary expansion in the last year of the First Plan, exerted pressure on prices and policy was accordingly geared to bring about relief from a situation of rising prices, especially of foodgrains; imports of grains were stepped up and selective credit controls on foodgrains advances were initiated. Prices were on the whole steadily rising over the whole of the Second Plan and by March 1961 the general index of wholesale prices was higher by 30 per cent compared to the level at the beginning of the Plan. The price increase was shared by all the major groups. Food articles (+27 per cent) and manufactures (+26 per cent) rose by somewhat below the average but industrial raw materials (+45 per cent) showed a much sharper rise. Reflecting the trends in the general wholesale price index, the all-India cost of living index increased by 24 per cent over the Second Plan.

The underlying factor behind the Second Plan price experience had been the rising pressure of aggregate monetary demand as reflected in the sharp monetary expansion, which was nearly three-and-a-half times that recorded in the First Plan. The impact of the rising investment expenditure, reflected in a steep increase in the level of Government indebtedness to the banking system, was moderated initially by a draft on external reserves but subsequently exerted considerable stress on the domestic

TABLE XI

Wholesale Prices — 1951-1969

(Base: 1952-53=100)

March (*Average*)	1951	1956	1961	1966	1969	*Percentage changes* 1956 *over* 1951	1961 *over* 1956	1966 *over* 1961
1. Food Articles	112.4	92.8	117.5	172.9	220.1	— 17.4	+ 26.7	+ 47.1
2. Liquor and Tobacco	112.9	78.7	113.4	128.8	258.8	— 30.3	+ 44.0	+ 13.5
3. Fuel and Power, Light and Lubricants	97.5	96.8	122.7	159.9	196.8	— 0.7	+ 26.7	+ 30.3
4. Industrial Raw Materials	153.7	109.4	159.1	207.0	245.5	— 28.8	+ 45.4	+ 30.1
5. Manufactures	118.7	102.9	129.4	157.3	173.1	— 13.3	+ 25.7	+ 21.5
6. All Commodities	120.2	98.1	127.5	172.3	210.5	— 18.4	+ 30.0	+ 35.1

price situaton. The expansion of demand coincided with shortfalls in agricultural production, especially of foodgrains, particularly in 1957-58. The situation was alleviated by larger import of foodgrins, the bulk of it under P.L. 480 agreements. Towards the end of the Plan, with a spurt in agricultural production, an element of relative stability was imparted to foodgrains prices, and with their weight in the overall index, to the general price level.

This element of relative stability marked the price experience of the first two years of the Third Plan. With the bumper harvests of 1960-61 and 1961-62, and the continued availability of supplies of P.L. 480 foodgrains, an acceleration of the investment level was possible without any untoward effects on prices. The Chinese aggression in late 1962 and the super-imposition of larger defence expenditure on growing development outlays exerted strong demand pressures in 1963-64. The increase in aggregate demand coincided with comparative stagnation of agricultural production so far during the Third Plan. Over the greater part of 1963-64, prices were consequently on the uptrend and recorded the highest rate of rise during any year in the Third Plan period. Over the Third Plan period, prices rose by 35 per cent on top of a rise of 30 per cent during the Second Plan period. The largest rise during the Third Plan took place under the Food Articles group (47.1%), followed by Fuel and Power (30.3%) and Industrial Raw Materials (30.1%). Manufactures rose by 21.5 per cent and Liquor and Tobacco by 13.5 per cent. Reflecting these trends in the wholesale prices, cost of living also rose by about 40 per cent. Measures to arrest prices, especially of essential commodities, so as to protect the more vulnerable section of the people have included the continuance and, where indicated, the tightening of credit controls, both general and selective, and steps to enlarge the availability of essential goods.

A noteworthy feature of the record of Indian prices in the period of planned economic development as a whole is that they have not risen more than have prices in other countries similarly situated.

Admittedly, it is difficult to generalize about the effects of price changes on the Indian economy over the period of an entire century from 1861 to 1961. Historically, periods of rising prices seem to have been more frequent and prolonged than those of depression and falling prices. For a country like India, with the large mass of the people being net debtors, a gradual rise in prices should in part alleviate the burden of debt. Given the structure of production and marketing, however, only a small proportion of the benefit of higher prices accrues to the agriculturist or artisan owing to interception by middlemen and moneylenders. Likewise, the extent of stimulus to output as a result of high prices is limited by structural and institutional constraints, such as the shortage of capital, skills and enterprise and the largely self-sufficient

character of Indian agriculture. On the other hand, although the proportion of fixed income groups (salary and wage-earners) in the total population is comparatively negligible, the effects of rising prices on general consumption standards are usually serious enough for fixed income groups, including the large class of landless agricultural labourers who are remunerated in cash, to warrant special measures. Also, the bulk of the population, although nominally self-employed, has such small and fluctuating money incomes that its capacity to bear price changes is very limited. Thus, apart from acute famines like those of the nineteenth century and the Bengal famine of World War II, even minor increases in prices, particularly of food articles, impinge harshly on the more vlunerable sections of the community like the salaried middle class, landless and certain other classes of labour and the smaller cultivatcors and artisans. In the result, the structure of the Indian economy makes it basically more sensitive to the less desirable socio-economic consequences of rising prices.

With the rising tempo of investment expenditure in the phase of intensive economic development ahead, continued pressure on prices is only to be expected. The task of price policy, and indeed of economic policy, in the coming years will be to organize the financing of defence, development and rehabilitation with the minimum disturbance to financial and price stability so as to ensure substantial growth on a sound and orderly basis. Withal, cyclical, temporal and seasonal variations in agricultural prices have to be progressively reduced so as to conform to their economic function of orderly marketing and distribution of supplies. The objective of policy in respect of non-agricultual as of agricultural prices remains to assure a reasonable return to the producer and to safeguard his incentive to sustain a steady flow of output and suppleis at a level of prices which, all the same, is fair to the average consumer and to the industrial user of commodities and products.

CHAPTER XIII

PUBLIC FINANCE

I. Evolution of Indian Public Finance

The finances during the East India Company's regime were characterized by excessive centralization which resulted in provincial extravagance and negligence of local officers. The Provincial Government resented the interference of the Central authority, whose control could not be effective due to the absence of modern methods of accounting and auditing and of rapid means of communication made worse, in the earlier years, by the separation of the Company's territorial areas by independent territories. During the Company's regime, the condition of Indian finance was one of "chronic deficits". Since 1813, when the commercial accounts of the Company were separated from its territorial revenue and expenditure, and until the end of its rule in 1858, there was a surplus of £8.9 million in 13 years of surplus as against deficit in 33 years amounting to £72.2 million. The Company was ceaselessly engaged in aggressive wars which continuously swelled its military expenditure. The expenditure on civil administration was high owing to the exclusion of Indians from higher appointments and it increased with the expansion of the Company's territory. Till 1813, there was also the strain of expenditure on the Company's investment estimated at nearly £1.2 million annually. A certain proportion of the revenue of Bengal had been for many years set apart in the purchase of goods for export to England, and this was called the investment. The Company's expenditure rose from £6.9 million in 1792-93 to £41.1 million in the last year of its rule. The entire revenues were raised in India but a substantial proportion of them were spent in England — this duality of spending authority was not conducive to efficient expenditure control. No attempt was made to check the growth of expenditure, except the notable decrease from £24.2 million in 1828 to £16.7 million in 1835 as a result of the efforts of Lord Bentinck.

The most important source of income was land revenue. The other sources of revenue, in order of importance, being the opium monopoly, salt revenues, customs (the duties never exceeded 10 per cent), *abkari* or excise and stamps. The Company never cared to develop the resources of the country or to provide nation-building, social and development services, though a beginning was made in these directions.

II. Indian Finance Under The Crown

At the outset, the entire revenues of the country were pooled into a single Central fund, from which the Government of India met its own expenditure as also that of the provincial Governments. Most of the revenue was collected by the provinces, which were also responsible for disbursing a large proportion of it. As increased revenues or economy in expenditure brought no local advantage, the system was not conducive to efficient management of finances. This extreme centralization led to constant disputes as the provinces had to obtain the approval of the Central Government even for minor items of expenditure. They were more impressed by their own needs and could not appreciate the financial difficulties of the Central Government, which was also not familiar with local problems and was unable to stop provincial extravagance. To remove these defects Lord Mayo, by his Resolution of December 14, 1870, introduced the system of making fixed grants to the provinces for meeting the cost of provincial services, and any extra expenditure on these was to be met by effecting economy or imposing local taxes. A lump sum grant of £4.7 million a year, in addition to the departmental receipts from these services, was made for the provincial services on jails, registration, police, education, medical, printing, roads, civil buildings and miscellaneous public improvements. In the Central accounts, these were replaced by the single item, "Provincial Services". The provinces were given some freedom to appropriate this grant within the several heads and any unspent grant could be carried forward. However, as the need for a strong Central Government was paramount, a number of restrictions were continued to enable the Government of India to retain its controlling and supervisory powers.

The next step forward was taken in 1877, under Lord Lytton, when all the remaining services (along with the connected receipts) except those directly administered by the Government of India, were transferred to the provinces. To meet the extra expenditure, the provinces were given a share of revenue (from excise, stamps and some other items that varied from province to province), which suffered from neglect due to absence of any provincial interest in their collection. If the actual revenue from these heads differed from the estimated realization, the provinces were to share the excess or deficit with the Government of India in equal proportion. Thus, for the first itme, the provinces were given a direct interest in the collection of revenue. These contracts were different for different provinces and were subject to revision after five years. When they were revised in 1882, Lord Mayo's lump sum grants were abolished and the provinces were assigned, besides the departmental receipts, a specified share from the revenue heads already transferred to them and a fixed share of land revenue to make up the deficit in their

budgets. When these quinquennial settlements were revised in 1904, an attempt was made to give the same share of the chief sources of revenue to the provinces so as to achieve equality of treatment and the revenue from excise, stamps, income tax, registration, forests, larger irrigation works and land revenue was shared generally in equal proportion between the two Governments. The shares of the "divided heads" were not always the same for all provinces. For example, while the United Provinces received three-eights of land revenue, Bengal's share was one-half. This resulted in deficits or surpluses in provincial budgets which were adjusted through fixed cash assignments from the central or provincial share of land revenue to the other Government. The provinces also received the departmental receipts, registration fees and minor irrigation receipts and were responsible for expenditure on these heads. The charges on the "divided heads" were shared equally between the two Governments except that expenditure in connection with land revenue, including district administration, was a provincial liability.

The periodical revision of the contracts caused resentment amongst the provinces as the Government of India would try to appropriate to itself most of the improvement in provincial finances. It was not conducive to continuity of financial policy and encouraged hasty and extravagant expenditure by the provinces in the last year of the contracts. The expenditure on Home Charges, incurred in England, caused uncertainty due to a falling exchange rate since the process of decentralization began and imposed a heavy strain on Central finances. By now, the Central budget was no longer a gamble in foreign exchange. Accordingly, the settlements made in 1904 were declared quasi-permanent. After a few changes (such as a larger share of excise revenue to the provinces by reducing the fixed cash assignments from land revenue) the settlements made after 1911 were declared permanent. However, the Government of India was to assist a province in case of widespread famine and call for aid from the provinces in case of war or serious financial crisis.

The history of financial decentralization shows that this process evolved and progressed on considerations of administrative convenience rather than any regard to the principles of finance appropriate to a vast country having wide regional disparities. The arrangemens involved gross inequalities between the provinces *inter se* as no regard was paid to the wealth, population, per capita income or need of the provinces in allocating funds to them. Against this must be said that the Government of India was not proceeding on a clean slate and the satisfactory available basis was the actual level of expenditure attained in each province though, to achieve a semblance of equity, subsequent revisions always favoured the weaker provinces. The aim of these steps towards

decentralization was to achieve economy in expenditure and efficiency in revenue collection and they were justified by these tests. The arrangements were occasionally disturbed in emergencies when the provinces were asked to make special contributions, which were remitted later. The Government of India gave special grants in surplus years and this had a distorting influence on provincial finance. It never relinquished its supremacy and throughout retained its overall control over the financial administration, including creation of posts and revision of salary scales, of the provinces. It felt that responsibility for provincial solvency must rest with itself under an administration that was not responsible to the people. For this reason, the provinces could not budget for a deficit and were not given the right to raise loans or impose fresh taxation. In their zeal for improvement of local services, they might impose heavy burdens on the people which might be resented and add to the unpopularity of foreign rule.

III. Montagu-Chelmsford Reforms

The Reforms of 1919 saw the beginnings of the new objective of provincial autonomy. The "divided heads" were abolished. Land revenue, excise, stamps, forests, registration and irrigation works, were wholly provincialized, while opium, salt, customs, income tax*, railways, posts and telegraphs and military receipts were wholly Central. The provinces were also made responsible for the expenditure on irrigation and famine. These changes left the Government of India with a deficit. The Meston Committee** estimated that, as a result of the constitutional changes, the provinces had an extra spending power of Rs. 18.50 crores at the cost of the Government of India. Accordingly, it fixed the provincial countributions to cover the Central deficit, extimated at Rs. 9.83 crores, as a proportion of the addition to the spending power of the different provinces. The Meston Settlement (1920) resulted in great inequalities, for example, the contribution of Tamil Nadu was Rs. 348 lakhs and of the United Provinces Rs. 240 lakhs, as against that of Maharashtra Rs. 56 lakhs and of Bengal Rs. 63 lakhs. This was strongly resented. Against the expectations of the Meston Committee,

* As a result of agitation by the provinces, ultimately the provinces were given a share equal to 3 pies in each rupee on the excess of assessed income over that assessed in 1920-21. The provincial share was small, for example, Rs. 0.04 crore in 1936-37. This was, however, an important departure from the academic instance of the *Report on Constitutional Reforms* to the principle of complete bifurcation of revenue resources.

** The committee was to advise on: (i) the contributions to be paid by the various provinces to the Central Government for the financial year 1921-22; (ii) the modifications to be made in the provincial contributions thereafter with a view to their equitable distribution until there ceases to be an all-India deficit; (iii) the future finance of the Provincial Loan Account; (iv) whether the Government of Bombay should retain any share of the revenue derived from income tax.

the provinces faced budgetary deficits. The contribution of Bengal had to be remitted successively from 1922-23. Further, as a result of improvement in Central finance, the contributions were partly remitted (Rs. 2.50 crores) in 1925-26 and (a further Rs. 1.25 crores) in 1926-27. They were wholly remitted in 1927-28 and were finally abolished in 1928-29. The provinces were given powers of taxation* and borrowing subject to the control of the Government of India. The provinces had the system of dyarchy, wherby the provincial subjects were divided into "Reserved" and "Transferred". The "Transferred" subjects**., consisting of social and nation-building services, were under the charge of Minister responsible to the provincial legislatures. The provincial Governors had powers of restoring any cuts by the legislature in the "Reserved" subjects but were bound by its resolution on the "Transferr-ed" subjects. The provincial resources were to be used in the following order: first, contribution to the Government of In ia; secondly, needs of the reserved subjects; and thirdly, the requirements of the transferred heads. Thus, additional taxation would seem to be necessitated by the needs of the transferred subjects. Though the Central Legislative Assembly had an elected majority and possessed some control over a small proportion of the Central budget, this concession was nullified by giving to the Viceroy the power of certifying the budget if it was not passed by the Assembly.

Provincial Autonomy was inaugurated on April 1, 1937 by the Government of India Act, 1936, which abolished dyarchy. Provincial powers of taxation and borrowing were enlarged and normally the provinces enjoyed budgetary freedom from the Government of India. The provincial list of taxes was expanded and they took advantage of it by levying sales tax, agricultural income tax, etc. The Central taxes were also enumerated and the residuary powers were vested in the Central Government. Income tax, except tax on agricultural incomes, was to be administered by the Centre, but a part of the net proceeds was to be distributed among the provinces. Further, if the Central legislature so provided, export duties, salt duty and Central excise duties could be assigned, wholly or in part, to the provinces. In additon, Section 142 made provision for grants to the provinces. Sir Otto Niemeyer was asked to make specific recommendations*** on these balancing factors.

* In the case of some taxes, such as, those on non-agricultural land, succession, betting and gambling, advertisements, etc. the provincial powers were not subject to the control of the Government of India.

** These were excise, registration, education, medical, public health, local self-Government, agriculture, industires, scientific and miscellaneous departments, forests (in Bombay only) and civil works. The expenditure on transferred subjects was less than 49 per cent of the total provincial expenditure.

*** *Indian Financial Inquiry Report* by Sir Otto Niemeyer (1936). His recommendations were accepted by the British Government.

On his recommendation, 50 per cent of the net proceeds from income tax was assigned to the provinces*, though the Centre retained a part of the provincial share till 1950-51. The share of the jute growing provinces in the export duty on jute was realized from 50 to 62.5 per cent. The entire debt of Assam, Bengal, Bihar, North West Frontier Province and Orissa to the Central Government was cancelled, so also part of the debt of the Central provinces. After taking account all these benefits, Sir Otto recommended tapering annual grants to the five provinces mentioned above, to ensure budgetary equilibrium and to enable them to start on an even keel. The total transfers to the provinces increased from Rs. 7.02 crores in 1937-38 to Rs. 51.61 crores in 1946-47 (of which the share of income tax was Rs. 1.25 crores and Rs. 29.87 crores, respectively) forming 7.8 per cent and 21.6 per cent, respectively of their total revenue. This indicates their increasing dependence on the Centre.

IV. Allocation of Financial Resources Between the Centre and the States

The Indian Constitution, which was inaugurated on January 26, 1950, allocates functions of common interest, belonging to the national or international sphere, to the Central Government, while those of local and regional interest are assigned to the States. This is a necessity in a country, with wide differences of language, religion, economic development and natural resources. The division of functions, as also of resources, is based broadly on the criteria of efficiency so that what belongs naturally to one Government has been placed in its sphere. Thus the Union Government is responsible for defence and foreign affairs, inter-State and international trade and commerce, navigation, aviation and national highways, posts, telegraphs, telephones, broadcasting, wireless currency, coinage, banking and insurance, etc. The States have been assigned police, public order, medical and public health, education, roads and bridges, agriculture and irrigation, forests, inter-State trade and commerce, etc. There is also a concurrent list to which belongs criminal law, economic and social planning, labour welfare, industrial disputes, social security, etc. The division of resources also follows the principle of efficiency**. There is a clear bifurcation of tax jurisdic-

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* This was distributed among the provinces on the basis of residence and population, "Paying to neither factor a rigidly pedantic deference". However, little weightage was given to population.

** The scheme of division follows broadly the pattern of the Government of India Act, 1935. The important changes are: (1) export duties are not shared with the States. This is necessary to ensure complete federal control over foreign trade. However, fixed grants were given for ten years to the jute growing States to compensate them and to enable them to adjust their finances, (2) some restrictions are

tion and a comprehensive enumeration of taxes so that competitive exploitation of the same tax and duplication of tax administration is avoided. The taxes under the legislative jurisdiction of the Union can be grouped under four categories: First, taxes whose entire proceeds are retained by the Union. These are corporation tax, import and export duties, taxes on capital other than agricultural land and surcharge on taxes under categories (2) and (3). Secondly, taxes whose proceeds are shared with the States. These are taxes on income (other than agricultural income) and excise duties except those assigned to the States. Thirdly, taxes whose entire net proceeds are assigned to the States. These are succession and estate duties on property other than agricultural land, terminal taxes on goods and passengers carried by rail, sea or air, taxes on railway fares and freights, taxes other than stamp duties on transactions in stock exchanges and future markets and taxes on the sale or purchase of newspapers and on advertisements published in them. Lastly, taxes to be collected and retained by the States. These are stamp duties mentioned in the Union List, taxes on inter-State sales and duties of excise on medicinal and toilet preparations containing alcohol, opium or such drugs. The jurisdiction of the States extended to land revenue, taxes on agricultural land and income, excise duties on alcoholic liquors, opium, Indian hemp, and other narcotic drugs, taxes on the sale and purchase of goods other than newspapers, taxes on lands and buildings and mineral rights, capitation taxes, tolls, stamp duties and registration fees. Taxes on the following are also assigned to the States: entry of goods into a local area, consumption and sale of electricity, advertisements other than those published in newspapers, goods or passengers carried by road or inland waterways, vehicles, animals or boats, professions, trades,callings and employments, luxuries including entertainments, amusements, betting and gambling. There is a provision that if a State or local authority was levying a tax (now in the Union List) before the commencement of the Constitution, then it can continue to do so until prohibited by Parliament. The residuary powers of taxation belong to the Union Government.

V. The Problem of Financial Adjustment

The scheme of allocation assigns elastic and productive sources of revenue to the Centre while expanding social and development services are assigned to the States. The balancing factors are, therefore, of great

placed on the powers of the States to levy taxes on the sale and purchase of goods, (3) the limit to the total amount of taxes on professions, trades, callings and employments payable by any person is raised from Rs. 50 to Rs. 250 per annum, and (4) the Union Government has legislative jurisdiction over taxes on the sale and purchase of newspapers and advertisements published therein.

importance. The States derive substantial revenue from them and to give them fiscal independence, Constitution provides for a Finance Commission*, to be appointed by the President, after every five years or earlier, to recommend the share of taxes and grants-in-aid to be paid to the States. Before the inauguration of the Constitution, the balancing factors were based on the recommendations of Sir Otto Niemeyer. With the partition of the country, the alloation of the provincial share of income tax was revised by the Government of India. This caused discontentment amongst some provinces and accordingly C. D. Deshmukh was asked to give a binding award to be applicable from 1950-51. He reallocated the released percentage comprising 14½ units relating to the areas/provinces that had formed part of Pakistan to the Indian provinces largely on the basis of population with some weightage in favour of the more needy provinces.

The Government of India also reduced the provincial share of the jute export duty to 20 per cent as about 70 per cent of the jute growing area of undivided India became part of Pakistan. The four affected provinces strongly protested against it. In view of the constitutional provinces, Deshmukh fixed the compensation to be paid to these provinces in lieu of the share of export duty on jute at Rs. 1.85 crores. The First Finance Commission increased it to Rs. 3.15 crores which was endorsed by the Second Commission. These grants lapsed after 1959-60.

The First Finance Commission raised the States' share of income tax to 55 per cent of the divisible pool**. This was increased to 60 per cent by the Second Finance Commission, to 66⅔ per cent by the Third Commission and to 75 per cent by the Fourth Commission. The Fifth

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* The recommendations of the Finance Commissions so far appointed were almost wholly accepted. This convention should ensure fiscal independence to the States. The recommendations of the First Commission were for five years ending 1956-57, of the Second for the period ending 1961-62, and of the Third for the fours years ending 1965-66, so that in future the period covered by the recommendations of the Finance Commission could synchronise with the five year period of the Plans. The Fourth Commission made recommendations for the five years ending March 31, 1971. However, the Commission's recommendations were applied only during the three years 1966-67 to 1968-69; when there were annual Plans. The recommendations of the Fifth Commission were for the five years ending March 31, 1974, to synchronize with the period of the Fourth Plan.

** Divisible pool of income tax-total revenue from taxes on income other than corporation tax excluding Central surcharge, *minus* cost of collection and the portion attributable to Union emoluments and Union Territories. The advance tax collections were taken into account in determining the net proceeds of income tax only on the completion of regular assessments. Some State Governments represented to the Fifth Commission that the advance tax collections should form part of the divisible pool. The Commission took up this question with the Comptroller and Auditor-General and the Government of India, who agreed that the advance tax collections should form part of the net proceeds of income tax for that year. In accordance with the recommendations of the Fifth Commission, the State share of the unadjusted amount of advance tax for earlier years, amounting to Rs. 371 crores, was to be paid to them in three equal instalments in each of the years 1971-72, 1973-73 and 1973-74.

Commission did not change the share of the States. The First Commission distributed 20 per cent of the States' share on the basis of collection and the rest on the basis of population. The former percentage was reduced to 10 by the Second Commission but the Third Commission, to help the industrial States, restored the formula of the First Commission. This was endorsed by the Fourth Commission. The Fifth Commission recommended that 90 per cent of the States' share of the divisible pool should be distributed among them on the basis of population and "the remaining 10 per cent on the basis of figures of assessments after allowing for reductions on account of appellate orders, references, revisions, rectifications, etc."*. Thus, the Fifth Commission restored the formula of the Second Commission.

The States were given, on the recommendation of the First Finance Commission, 40 per cent of the net proceeds of Union excise duties on tobacco (including manufactured tobacco), matches and vegetable products to be distributed among them on the basis of population. The Second Commission reduced the States' share to 25 per cent but added the excises on sugar, tea, coffee, paper, and vegetable non-essential oils to the divisible pool, so that the States' share was actually larger. It distributed 90 per cent of it on the basis of population and used the balance for adjustments. The Third Commission, impressed by State's needs and the shrinkage of the divisible pool of income tax following the reform in company taxation, increased the number of excisable commodities in the divisible pool from 8 to 35 by including all commodities (except motor spirit) on which the duty yielded more than Rs. 50

* *Report of the (Fifth) Finance Commission*, p. 28. On the basis of the formula recommended by the Commission, it fixed the share of each State in respect of the financial years 1969-70 to 1973-74, as under (figures indicate the percentage share of each State):—

State	Share
Andhra Pradesh	8.01
Assam**	2.67
Bihar	9.99
Gujarat	5.13
Haryana	1.73
Jammu and Kashmir	0.79
Kerala	3.83
Madhya Pradesh	7.09
Maharashtra	11.34
Karnataka	5.40
Nagaland	0.08
Orissa	3.75
Punjab	2.55
Rajasthan	4.34
Tamil Nadu	8.18
Uttar Pradesh	16.01
West Bengal	9.11
Total	100.00

**The share of divisible taxes (received from the Union Government) is to be apportioned between Assam and Meghalaya in accordance with section 56(1) of the Assam Reorganisation (Meghalaya) Act, 1969.

lakhs. The States' share was fixed at 20 per cent to be distributed mainly on the basis of population, but the Commission gave some weightage to the backward States. The Fourth Commission recommended that 20 per cent of the net proceeds of all Union excise duties, including the duties which might be taken up for levy in the coming quinquennium, except regulatory duties, special excises and duties and cesses earmarked for special purposes, should be distributed among the States. They recommended that 80 per cent of the State share be distributed on the basis of population and 20 per cent on the basis of economic backwardness. The Fifth Commission did not agree to increase the State share but recommended that the revenue from special excise duties should be included in the divisible proceeds from the year 1972-73 in case such duties were continued. It recommended that 80 per cent of the States' share be distributed on the basis of population and out of the remaining 20 per cent "two-third should be distributed among States whose per capita income was below the average per capita income of all States in proportion to the shortfall of the States' per capita income from all States' average, multiplied by the population of the State and remaining one-third on the basis of an integrated index of backwardness.*

As against special grants of Rs. 70 lakhs paid to Orissa and Assam in 1950-51, the First Finance Commission gave special grants of Rs. 5.05 crores per annum to seven States** besides specific grants for the spread

* On the basis of the formula recommended by them, the Commission worked out the share of each State as under (figures indicate percentage share of each State):

State	Share
Andhra Pradesh	7.15
Assam	2.15
Bihar	13.81
Gujarat	4.17
Haryana	1.49
Jammu and Kashmir	1.12
Kerala	4.28
Madhya Pradesh	8.48
Maharashtra	7.93
Karnataka	4.65
Nagaland	0.08
Orissa	4.72
Punjab	2.17
Rajasthan	5.28
Tamil Nadu	6.50
Uttar Pradesh	18.82
West Bengal	6.84
Total	10.000

** Assam, Mysore (Karnataka), Orissa, Punjab, Saurashtra, Travancore, Cochin and West Bengal.

of primary education to eight backward States[1] rising from Rs. 150 crores in 1953-54 to Rs. 300 crores in 1956-57. The Second Commission gave special grants to eleven States[2] rising from Rs. 36.25 crores in 1957-58 to Rs. 39.50 crores in 1961-62. These were increased following the recommendation of the Third Commission[3], to Rs. 110.25 crores per annum payable to all the States except Maharashtra, besides a grant of Rs. 9 crores per annum (approximately equal to 20 per cent of the proceeds from the excise duty on motor spirit) to ten States[4] for improvement of communications. The Fourth Commission recommended annual grants of Rs. 121.89 crores to ten States[5]. The Fifth Commission recommended grants to ten States[6]. gradually declining from Rs. 152.73 crores in 1969-70 to Rs. 102.41 crores in 1973-74.

In addition, the following revenues are also distributed amongst the States on the recommendation of the Finance Commissions appointed from time to time: (1) additional duties of excise (in lieu of sales tax levied by the States) imposed in 1957-58 on mill-made textiles (excluding silk fabrics), sugar and tobacco (including manufactured tobacco) and in 1961-62 on silk fabrics; (2) estate duty (exlcuding that on agricultural land, which accrues to the States that have authorized the Centre to impose it and in which such land is situated), and (3) tax on railway passenger fares imposed on September 15, 1957, and abolished from April 1, 1961, when it was merged in passenger fares. The railways thereafter provided Rs. 12.5 crores annually in lieu of the tax. On representations made by the State in view of the increase in traffic, the Railway Convention Committee (1965) agreed that this grant be increased to an amount equal to one per cent of the capital at charge on March 31, 1964, out of which Rs. 16.25 crores may be paid as g[illegible] States in lieu of the repealed tax and the balance of about Rs. 1.50 c[illegible] may be utilized to assist the States to provide their share of the [illegible] of Railway safety works.

1. Bihar, Hyderabad, Madhya Bharat, Madhya Pradesh, Orissa, P.E.P.S.U., Punjab and Rajasthan.

2. Andhra Pradesh, Assam, Bihar, Kerala, Madhya Pradesh, Karnataka, Orissa, Punjab, Rajasthan, West Bengal and Jammu and Kashmir.

3. The Government of India did not agree that 75 per cent of the revenue component of the State Plans be included in the scheme of devolution. This was not a unanimous recommendation and its non-acceptance did not affect the total amount of Central assistance to the States. If the Commission's recommendation was accepted these would be statutory grants and would lack flexibility.

4. Andhra Pradesh, Assam, Bihar, Gujarat, Jammu and Kashmir, Kerala, Madhya Pradesh, Karnataka, Orissa and Rajasthan.

5. Andhra Pradesh, Assam, Jammu and Kashmir, Kerala, Madhya Pradesh Tamil Nadu, Karnataka, Nagaland, Orissa and Rajasthan.

6. Andhra Pradesh, Assam, Jammu and Kashmir, Kerala, Karnataka, Nagaland, Orissa, Rajasthan, Tamil Nadu and West Bengal.

Table 1* shows the increasing dependence of the States on the devolution of funds from the Centre,** which (excluding loans) formed 24.1 per cent of their total revenue expenditure during the First Plan and 35.8 per cent during the Second Plan. This percentage declined to 34.4 during the Third Plan but rose to 37.3 during the three Annual Plans (1966-69) and to 45.2 in 1971-72 (Budget). While it solves the problem of financial disequilibrium, it violates the principle of Financial Responsibility. There is divorce of revenue raising and spending powers. There is, however, a preponderance of unconditional grants and share of taxes which the States are free to utilize as they like. This gives fiscal independence to the States and has neither encouraged extravagance in expenditure nor laxity in tax collection. In the case of specific or conditional grants, the Union Government provides the funds while the States are responsible for the execution of the projects. This divided responsibility results in delay and inefficiency in the execution of the schemes. The problem bristles with difficulties and on its solution will depend the future of federalism in India. Though the dependence of the States on the Centre has been increasing, they have not become mere departments of the Government of India and have asserted their rights whenever they have found it necessary to do.

VI. Financial Integration of Princely States

At the time of independence, there were about 555 Princely States. The genius of Sardar Vallabh Bhai Patel brought them into an integral relationship with the Indian Union. The process began on January 1, 1948, and was completed within two years. "This bloodless revolution has been brought about, on the one hand, by the operation of democratic forces unleashed by freedom and, on the other, by the patriotic attitude of the Rulers who have been quick to appreciate the change." The smaller States were merged in the provinces of India or into Unions of States known as Part B States.*** Though Part B States were politically integrated, many of them had their own army, coinage system, railways and post offices. The Union Government had no right to levy federal taxes in their territories. These States were financially integrated with the Union of India on April 1, 1950****, on the basis of the

*See Appendix.

**The percentage of shared taxes, grants and net loans made available by the Centre to the States formed 36.0 per cent of their total expenditure on capital and revenue account during the First Plan. This percentage rose to 41.9 during the Second Plan, and to 43.4 during the Third Plan. It, however, declined to 41.7 during the annual Plans, and to 40.4 in 1971-72 (Budget).

***These were Hyderabad, Madhya Bharat, Karnataka, P.E.P.S.U., Rajasthan, Saurashtra and Travancore-Cochin. The former British Indian Provinces were known as Part A States, while the Centrally administered areas were known as Part C States.

****Except P.E.P.S.U. which was integrated on April 13, the beginning of its financial year.

recommendations of the Indian States Finances Enquiry Committee (1948-49). Thereafter, the Union Government acquired the same functions and fiscal powers in these States as in the rest of India, though some time-lag was permitted to raise the rates of federal taxes on income to the all-India level and to abolish the internal customs duties levied in some of these States. In the case of States whose revenue gap (the difference between revenue and expenditure taken over by the Union Government) was positive, which measured their financial loss as a result of integration, the Union Government gave, to prevent any dislocation in their finances, tapering revenue gap grants for ten years. The revenue gap of Madhya Bharat, P.E.P.S.U., and Rajasthan was negative and they were not to compensate the Union Government. Part B States became entitled to a share of divisible federal taxes, which was set off against the revenue gap grants,if any. If their share of federal taxes exceeded their revenue gap, they were entitled to the former. A similar principle was applied to Part A States with respect to Princely States merged in them. Jammu and Kashmir was financially integrated on May 14, 1954. In this case, the power of Parliament to make laws is regulated by Article 370 of the Constitution. The distinction between Part A and B States was abolished on the reorganization of the States in 1956. Thus, independent India, though truncated in size due to partition, has achieved fiscal and economic unity.

VII. Union and State-Budgets : Growth of Revenue and Expenditure

During the last three decades, momentous events took place in India, which produced a marked impact on Government finances. Burma was separated on April 1, 1937, and this caused a net loss of Rs. 2.33 crores to the Central exchequer. The inauguration of Provincial Autonomy imposed an additional burden of about Rs. 5.80 crores in the first year. The Second World War increased the expenditure on defence, which rose from Rs. 46.18 crores in 1938-39 to Rs. 395.49 crores in 1944-45, the last full year of war. Nationalist opinion rightly felt that a part of it was unjustly debited to the Indian exchequer. There was also a considerable increase in the expenditure on civilian services connected with the war, so that the Central expenditure increased from Rs. 85.11 crores in 1938-39 to Rs. 496.25 crores in 1944-45 or by 484 per cent. To meet the increased expenditure, the rates of existing taxes were increased and some new taxes, such as the Excess Profits Tax and new excise duties, were imposed. Railway fares and freights and postal and telegraph charges were also increased. These measures, along with the increased activity generated by the war, helped to boost up revenue, which increased from Rs. 84.47 crores in 1938-39 to Rs. 335.70 crores in 1944-45 or by 300 per cent. Since expenditure increased more rapidly, the Government of India resorted to a large borrowing pro-

gramme and introduced a scheme of compulsory savings in the case of excess profits. Despite this, the Government failed to bridge the inflationary gap and there was a steep rise in prices, which had its impact on the Government's expenditure and revenue.

The provinces were able to build up Revenue Reserve Funds, which exceeded Rs. 60 crores at the end of the war. Their expenditure also increased, but relatively less rapidly due to rise in prices, increase in the police budget and civil defence measures and the prevalence of scarcity conditons, which necessitated the Grow More Food Scheme and measures for the control and distribution of food and other commodities. Their revenues increased due to war activity and the increase in taxation to mop up surplus purchasing power. New taxes, such as, the sales tax, agricultural income tax and urban immovable property tax, were also imposed.

As a result of developments that followed the termination of the war, India achieved independence on August 15, 1947, though it was accompanied by the partition of the country. The wisdom of British diplomacy and the sagacity of Mahatma Gandhi enabled India to achieve independence through peaceful means. However, the pangs of partittion were painful. The serious communal disturbances resulted in the mass evacuation of Hindus from West and East Pakistan. This imposed a heavy burden on the Government for their relief and rehabilitation. The expenditure on foreign affairs also increased. The progress in the reduction of defence expenditure was halted. There is a large land frontier, with no natural barriers, with Pakistan with whom relations have not been satisfactory. The paramountcy of the Government of India over the princely States lapsed with the grant of independence and some of them threatened to remain independent and increased their armed forces. The Kashmir operations also emphasized the need for a strong army. After the political and financial integration of the princely States, their armed forces were merged with Indian defence forces, which increased the defence bill. Relations with Pakistan deteriorated as a result of its attitude towards the Chinese aggression on India in 1962. There have been frequent border raids and though the cease-fire is operative in Kashmir, provocative speeches by responsible leaders of Pakistan and threats to use force to solve the Kashmir issue, which culminated in the Pakistan aggression of 1965, necessitate vigilance on the part of our defence forces. On account of our faith in the philosophy of peace, and the need to accelerate economic development, our defence expenditure has been very modest. In 1959, it was 1.9 per cent of our gross national product while this percentage was 10.0 for Burma, 8.7 for Viet Nam, 7.7 for Korea, 4.6 for Indonesia, 4.0 for Pakistan and 9.6 for the U.S.A. In 1959, the percentage of our defence expenditure to the total expenditure of the Union and State Govern-

ments was 15.4, whereas this percentage in the case of other countries was as follows: Pakistan 30.9, Korea 35.3, Burma 37.8, Viet Nam 39.0, Indonesia 39.8, and the U.S.A. 41.6. Pakistan, Korea and Viet Nam receive substantial U.S. military assistance and to that extent their defence expenditure is under-stated. The arms assistance from the U.S.A., U.K. and other friendly countries was received by us only after the Chinese aggression in October 1962, which has brought about an important historical change. For thousands of years, the Himalayan frontier has been peaceful and unguarded. It has now become a live and dangerous frontier. The effect of deteriorating relations with Pakistan and the Chinese aggression is reflected in the rapid growth of defence expenditure.

The attainment of freedom raised new hopes and aspirations amongst the masses. A popular Government had to justify the trust reposed in it and had to undertake a large social and development programme to fulfil the promises it had made to the people. The Planning Commission was set up in March 1950 to accelerate economic development. A large development programme compelled the Government to resort to deficit financing* which led to a rise in prices. This forced the Government to increase the salary and allowances of its employees and has also increased other expenditure. The financial integration of Part B States involved the taking over of federal services by the Government of India. They also became eligible for federal grants and other financial and technical assistance like Part A States. Both these factors increased the Central expenditure. The State Governments are responsible for social and developmental services, but they do not have the resources to finance them. Consequently, grants-in-aid to the States have increased. The increase in social and developmental expenditure has also increased the expenditure on administration. A large capital expenditure has increased the interest bill. The cumulative effect of all these factors has been that in almost each post-indepencence year, the Union Government's expenditure achieved a peace-time record.

The expenditure of the State Governments also increased rapidly. Every year it attained a peace-time record. The causes are rise in prices,

* In the Indian context, this implies borrowing funds from the Reserve Bank of India resulting in an expansion of currency. The extent of deficit financing was Rs. 420 crores in the First Plan and Rs. 948 crores in the Second Plan. On account of an increase in the money supply, the index number of wholesale prices (1952-53=100) declined from 111.8 in 1950-51 (average of weeks) to 98.1 in March 1956, but increased to 128.4 in March 1961. The quantum of deficit financing during the Third Plan was Rs. 1,133 crores. It was Rs. 723 crores during the Annual Plans 1966-69. In the Fourth Plan the provision for deficit financing was Rs. 850 crores, forming 5 per cent of the total resources as against 13 per cent in the Third Plan. The dependence on deficit financing had to be reduced on account of continuous rise in prices. The index number of wholesale prices (1961-62=100) rose to 131.6 (average of weeks) in 1965-66 and to 165.4 in 1968-69 (average of weeks). It continued to rise thereafter and was 181.2 (average of weeks) in 1970-71. The index had risen to 189.1 in the last week of July, 1971.

increased pay scales and allowances of employees, expansion of social and development services, increase in expenditure on civil administration and debt services. Since 1950-51, development expenditure was increased by 1,047 per cent as against an increase of 708 per cent in non-Government expenditure. Education has rightly received the highest priority. The future progress of the country depends on increasing opportunities for technical and general education. Under adult franchize, the importance of removing illiteracy cannot be over-emphasized. The percentage of literacy has increased from 16.6 in 1951 to 24.0 in 1961 and to 29.0 in 1971. The increased expenditure on medical and public health has paid rich dividends and the average expectation of life increased from 32.4 years during 1941-50 to 41.9 years during 1951-60. The large increase in the expenditure on agriculture and rural development is fully justifiable since agriculture accounts for 48 per cent of the national income and 82 per cent of the population lives in rural areas.

The increase in expenditure has emphasized the need for economy and efficiency. There is a strong feeling that more men are employed in Government departments than are necessary to do the work efficiently. The reports of the Estimates Committee and the Public Accounts Committee emphasize instances of waste,inefficiency and bad planning. There are also numerous complaints of corruption, bribery and nepotaism. It is necessary to reduce the cost of Government and to impose severe penalties in proved cases of corruption and nepotism. The Government is aware of the need for economy and the recommendations of Economy Committees in the States have reduced unnecessary expenditure. The Union Government also has machinery to secure economies in expenditure. The Organization and Methods Division in the Cabinet Secretariat, tries to improve the efficiency of administration. The Department of Expenditure in the Ministry of Finance has an Economy Division which examines all proposals, requiring the sanction of the Ministry, with the object of securing utmost economy. It has a Special Reorganization Unit, which explores improvements in the methods of work, so that it can be done with lesser staff. It works out suitable standards to measure the work that can be done, and is actually done, by each employee. The Internal Economy Committee in the different Ministries and departments constantly examine ways and means of quicker disposal and try to reduce expenditure on staff and contingencies. The Central Economy Board examines cases of disagreement between the Special Reorganization Unit and the Ministry concerned and the extent to which the proposals of the former should be enforced. The National Development Council has set up a committee on Plan Projects, which scrutinizes the projects and appoints teams to visit selected projects to examine their working thoroughly with the object

of avoiding waste and ensuring economy and efficiency in their execution.

The large increase in expenditure necessitated adequate expansion in revenues. Since 1950-51, Central and State revenues have increased by 806 per cent and 876 per cent respectively. Central revenues have increased as a result of financial integration of princely States, increase in the rates of existing taxes, imposition of new taxes and expansion of administrative receipts and the net contribution of public undertakings. Since 1950-51, tax revenues collected by the Union and State Governments have increased by 741 per cent and 624 per cent respectively. This reflects the comparative inelasticity of State taxes and explains the dependence of the States on the balancing factors. State revenues have increased on account of large transfers from the Union Government, increases in the rates of existing taxes, imposition of new taxes and an increase in the contribution of public enterprises and administrative receipts. While increased revenues have enabled the Union and State Governments to expand social and development services, they have also sacrificed revenue on sentimental and ideological grounds — the abolition of the salt duty and the policy of prohibition.

An important development in the post-independence period is that the Union Government has deliberately planned large revenue surpluses, which have helped to reduce the extent of deficit financing. Since independence, the revenue surplus amounted to Rs. 386 crores (of which Rs. 250 crores was during the First Plan) till the end of the First Plan. During the Second Plan, it was Rs. 220 crores and rose to Rs. 1,019 crores during the Third Plan. It was Rs. 414 crores during the three Annual Plans and was Rs. 125 crores in 1969-70, Rs. 198 crores in 1970-71 (Revised) and Rs. 153 crores in 1971-72 (Budget). Thus, the total revenue surplus till the end of March 1972 (Budget) amounted to Rs. 2,515 crores. The technique of financing capital expenditure out of revenue surpluses has helped in the fight against inflation.

As a result of continuous increases in taxation, the percentage of national income raised in taxation by the Union and State Governments increased from 6.6 in 1950-51 to 7.6 in 1955-56 and to 9.5 in 1960-61. It has since increased to 13.2 in 1968-69 and to about 14 per cent in 1970-71.

VIII. Capital Expenditure

Since independence, there has been a large increase in capital expenditure, to make up for the neglect of the past. Under British rule, the Government followed a conservative policy with respect to development expenditure. The total capital outlay of the Central Government was Rs. 1,239 crores and of Part A states (including the undivided provinces of the Punjab and Bengal) Rs. 208 crores till the end of March 1947.

Since independence, the capital outlay of the Government of India was Rs. 473 crores and of Part A States Rs. 173 crores till the end of 1950-51. Since then, it has considerably increased. In the post-independence period, capital expenditure has been restricted by the ability of the Government to raise funds through non-inflationary methods of finance. It is, therefore, necessary that public enterprises should follow a price policy that helps rapid economic development. Their surpluses should be enlarged to finance new projects. So far, the net contribution of public enterprises has been too small as compared to the large capital outlay on them.

There is great misunderstanding, especially abroad, about our objective of establishing a socialistic pattern of society. It is due to the use of the word 'socialistic' and the large capital outlay of the Government. It is, therefore, necesssary to emphasize — and the Government has repeatedly clarified it — that the 'socialistic pattern' does not mean that the State intends to own, now or ultimately, all the means of production or that it will nationalize all existing and new private industries. Our objective implies that the country's existing and potential resources should be fully exploited so that the standard of living of the masses, which is pitiably low, may rise quickly. This necessitates that the fruits of economic development should be equitabley shared by all, so that existing inequalities are reduced and there is no concentration of economic power. In an under-developed country like India, there are vast investment opportunities, but enterprise is shy and capital is lacking. Private enterprise wants to invest in tried and safe channels, where the gestation period is short and returns are resonably quick. The people are unfamiliar with the investment habit so that private industrialist cannot take up projects which require a high amount of capital and take several years to complete and another few years to be profitable. The construction of railways, irrigation works, multiple purpose river valley projects and even modern steel plants, are beyond the resources available to private enterprise. Even under the British rule, these projects, except steel plants, had to be State-owned. Lord Canning, in the fifties of the last century, tried the experiment of entrusting the investment on irrigation works to private enterprise. Two companies took up the Tungabhadra and Orissa canal projects and both of them failed. The Government alone has the patience and resources to finance such projects in under-developed countries as the utlay is large and the profits accrue after several years. The construction of railways began under the Company's rule, but till the end of the 19th century they were a financial loss to the Government. There is really no conflict between private and public enterprise in India. There are vast opportunities for both and these will continue to expand. In spite of investment by the Government, there is no shortage of investment opportunities for private enterprise.

IX. Revenue and Expenditure of Local Bodies

Lord Mayo (1869-72) encouraged local bodies to rouse local interest and supervision in the management of funds devoted to local welfare. Lord Ripon (1880-84) regarded them as good training ground for popular and political education and accordingly shifted the emphasis to 'Local Self-Government.' The next important landmark is the Government of India Act 1919, which made it a "transferred" subject and the Scheduled Taxes Rules framed under it reserved eleven taxes for local authorities. The self-Government aspect developed further on the inauguration of Provincial Autonomy and the attainment of independence. The constitutional directive that the State shall take steps to organize village panchayats as units of self-Government visualizes "development from below" and emphasizes the importance of local Government as an effective instrument for the democratic decentralization of political and economic power.

The Government of India Act 1935, bifurcated financial resources between the Central and State Governments and abolished the reservation of taxes for local bodies. This position continues under the Constitution. The result is that State Governments, burdened with large development outlays, coupled with the sacrifice of revenue due to prohibition, have encroached on local taxes, such as, profession tax, urban immovable property tax, entertainment tax, etc. The State Governments have also invaded the field of public enterprise which works more efficiently under local control. Instances are city transport, electric supply, etc. The consequence is that local bodies are starved of funds and are unable to play their proper role in providing civic amenities. In 1950-51, the share of Union and State Governments was 42 per cent and 49 per cent respectively in total governmental ependiture while that of local bodies was 9 per cent. In the U.S.A., the States and local authorities incurred 18 per cent and 19 per cent respectively of total governmental expenditure in 1950-51 and nearly the same percentages in 1962-63. The State Governments are relatively more important in our federal system.

Local bodies are eminently suited to provide certain social services, such as, primary education, sanitation, drainage, water supply, lighting, parks, local and feeder roads, public health, medical relief, regulation of offensive or dangerous trades, improvement of slums, etc. These functions can be performed efficiently if adequate resources are available. Impressed by the divergence in the functions and resources of local bodies, the Local Finance Enquiry Committee (1949-50) rightly held that, "wholesale transfer of functions from local bodies to State Governments is a retrograde step and should be avoided." It has, against a constitutional amendment, to reserve specified taxes for local bodies and recommended that a convention should be developed to that effect. The

Taxation Enquiry Commission (1953-54) was also against amending the Constitution and recommended that some taxes should be reserved for local bodies and panchayats and rural boards should be given at least 15 per cent of the yield from land revenue and municipalities and district boards at least 25 per cent of the revenue from motor vehicles taxes. The State Governments have not accepted these recommendations on account of financial stringency. It would be better if the Government of India, which gives substantial assistance to the States, uses its influence with them to increase the resources of local bodies.

The Taxation Enquiry Commission reported that there were 12 municipal corporations, 1,426 municipalities, 379 small town and notified area committees, 56 cantonment boards, 196 district boards, 96 rural boards and 87,018 village panchayats, whose number increased to 193,527 on March 31, 1961. There are some port trusts also. In recent years several big cities have set up improvement trusts and town planning bodies, which do not exercise powers of taxation. There is a great dearth of statistics of the revenue and expenditure of this large body of local authorities and it is necessary to fill this gap. The Local Financial Enquiry Committee estimated that in 1946-47 the total income of municipalities and corporations, covering a population of 2.7 crores, was Rs. 27.5 crores, of which about 70 per cent was from taxation. The total income of district boards, covering a population of 20.5 crores, was Rs. 15.6 crores — of which about 34 per cent was from taxation. The Taxation Enquiry Commission estimated that the income of municipalities was Rs. 35.55 crores, of which Rs. 4.31 crores or 12 per cent was from grants-in-aid and Rs. 22.77 crores or 63 per cent from taxation. The important tax sources were (all in crores) octroi Rs. 6.32, terminal tax Rs. 1.83, property tax Rs. 5.23, services tax Rs. 5.08, tolls Rs. 0.85, theatre tax Rs. 0.83, taxes on vehicles, animals and boats Rs. 0.48, profession tax Rs. 0.41, and taxes on passengers and goods Rs. 0·34. Octroi is the most important tax source. It is, however, a vexations tax, involving maintenance of road barriers and delegation of wide powers to petty officials. It should be replaced by terminal taxes and preferably by a local surcharge on State sales tax, which will introduce elasticity in local tax structures. The total expenditure of municipalities was Rs. 33.15 crores, of which Rs. 13.35 crores, or 40 per cent, was on drainage, conservancy, etc., Rs. 4.52 crores on roads and buildings. Rs. 3.56 crores on medical and health and Rs. 3.55 crores on administration. The total income of corporations which have wider functions and ampler powers of taxation, was Rs. 24.06 crores — of which Rs. 18.45 crores or 77 per cent was tax revenue. The chief tax sources were (all in crores): property tax Rs. 9.61, service taxes Rs. 4.46, octroi and terminal taxes Rs. 2.39, taxes on vehicles, animals and boats Rs. 0.74, profession tax Rs. 0.43 and theatre tax Rs. 0.27.

The Reserve Bank of India conducted surveys on the finances of city corporations, port trusts and municipalities in towns with a population exceeding 1,00,000. The following data covers 63 local authorities (4 port trusts, 17 corporations and 42 municipalities) which furnished returns as against 83 that were addressed. Their total receipts (revenue and capital account) increased from Rs. 92.7 crores in 1955-56 to Rs. 181.9 crores in 1960-61 (Revised). During this period, the revenue from rates and taxes increased from Rs. 29.4 crores to Rs. 73.8 crores or by 151 per cent, while grants from the Government increased from Rs. 4.1 crores to Rs. 9.3 crores, and loan receipts increased from Rs. 17.7 crores to Rs. 23.4 crores. During the same period, the expenditure on general administration increased from Rs. 10.4 crores to Rs. 16.8 crores or by 62 per cent, while that on public health and conveniences increased from Rs. 3.8 crores to Rs. 36.9 crores or by 871 per cent and on public works from Rs. 5.3 crores to Rs. 36.8 crores or by 594 per cent; yet civic amenities have not increased proportionately due to rise in prices and large influx of population. Their outstanding debt increased from Rs. 125.4 crores at the end of March 1956 to Rs. 201.9 crores at the end of March 1961, of which Rs. 77.1 crores and Rs. 107.1 crores respectively were market loans and Rs. 48.2 crores and Rs. 87.1 crores respectively were loans from the Union and State Governments. Gross capital formation in 1960-61 amounted to Rs. 30 crores or 15 per cent of their total disbursements.

The Reserve Bank survey on the finances of port trusts, municipal corporations and municipalites in towns with a population exceeding 1,00,000 (on the basis of the 1961 Census) for the years 1962-63 to 1965-66 covers 5 port trusts, 14 corporations and 63 municipalities which replied to their questionnaire as against 108 that were addressed. The total number of urban local bodies in 1961 was 1,860 with a population of 692 lakhs. The population covered by the local reporting authorities was 241 lakhs or 35 per cent of the total urban population covered by all local authorities. Their total receipts (revenue and capital account) increased from Rs. 214.05 crores in 1962-63 to Rs. 282.43 crores in 1965-66 (Budget) or by 32.0 per cent. During this period, the revenue from rates and taxes increased from Rs. 83.57 crores to Rs. 108.23 crores or by 23.0 per cent, while receipts from remunerative enterprises increased from Rs. 9.08 crores to Rs. 26.38 crores or by 192.2 per cent, grants from Government increased from Rs. 10.40 crores to Rs. 12.66 crores or by 21.7 per cent, and loan receipts increased from Rs. 23.59 crores to Rs. 40.01 crores or by 69.6 per cent. During the same period, the expenditure on general administration increased from Rs. 18.58 crores to Rs. 22.50 crores or by 21.1 per cent, while that on public health and conveniences increased from Rs. 30.97 crores to Rs. 50.97 crores or by 64.5, per cent, that on public works from Rs. 17.88 crores to Rs.

30.78 crores or by 72.1 per cent, that on public instruction from Rs. 13.93 crores to Rs. 30.87 crores or by 121.9 per cent and on remunerative enterprises from Rs. 10.47 crores to Rs. 15.15 crores or by 44.6 per cent. Their outstanding debt increased from Rs. 246.35 crores at the end of March 1963 to Rs. 283.04 crores at the end of March 1965 (or by 14.9 per cent), of which Rs. 111.61 crores and Rs. 119.01 crores respectively were market loans and Rs. 120.51 crores and Rs. 143.96 crores respectively were loan from Government. Gross capital formation increased from Rs. 19.82 crores in 1962-63 to Rs. 36.73 crores in 1965-66 or by 85.4 per cent.

The most important source of tax revenue of district and local boards is the land cess, which generally varies from 6¼ per cent to 12½ per cent of land revenue. The Taxation Enquiry Commission reported that the total income of district boards was Rs. 27.63 crores, of which Rs. 11.99 crores, or 43 per cent, was from grants-in-aid. Their tax revenue was Rs. 10.19 crores, the main sources being (all in crores), land cess Rs. 7.31, duty on transfer of immovable property Rs. 1.06, local rates Rs. 0.79, tolls Rs. 0.46, property tax Rs. 0.20, profession tax Rs. 0.16, octroi and terminal tax Rs. 0.07, and taxes on animals and vehicles Rs. 0.05. The per capita incidence of their taxation was about one-twelfth of municipal taxation. Their position is becoming untenable as some of their functions have been taken over by panchayats and some others, such as, roads, medicai and public health, etc., by the States.

The village panchayats derive most of their revenue from grants and taxes. Their establishment has curtailed the resources of local boards. They can levy property tax, profession tax, service taxes, taxes on animals and vehicles, octroi, cess on land revenue, tolls, theatre tax, etc. The exercise of their tax powers is subject to the approval of the State Governments. They are authorized to require all adult able-bodied male residents to give free labour for some days in a year (or its money equivalent) for building community assets. In 1951-52, the total revenue of 54,263 panchayats in Bihar, Kerala, Karnataka, Punjab and Uttar Pradesh was Rs. 1.26 crores, of which Rs. 0.60 crores, or 48 per cent, was from taxes, Rs. 0.17 crore from grants and Rs. 0.14 crore from fees and fines.

XI. Tax Structure

During the East India Company's regime, the taxes which it inherited from the local rulers were continued. Except for land revenue. the system of direct taxation was almost unknown. The *moturpha* was a direct tax levied on artisans, traders, etc. It was universally detested and yielded a small revenue. Accordingly, it was abolished in Bengal in 1793 and in other provinces (except Madras, where it was abolished at the end of the Company's rule) by 1844. The Company never cared to evolve

a coherent system of taxation and depended mostly on land revenue. This dependence continued under the Crown, though, with the development of other taxes, the percentage contribution of land revenue to total tax revenue declined from 43.9 in 1870-71 to 38.6 in 1900-01* when it yielded Rs. 26.2 crores. The concept of a tax structure based on equity was unknown to the 19th century unrepresentative Government. Land revenue has been an inelastic source of revenue: its yield increased to Rs. 31.1 crores in 1911-12 and to Rs. 34.7 crores in 1921-22. During the same period, the increase in revenue from the other principal taxes was (all in crores);customs Rs. 9.6 to Rs. 34.4, income tax** Rs. 2.4 to Rs. 22.1, excise Rs. 11.4 to Rs. 17.2 and salt Rs. 5.1 to Rs. 6.3, while the opium revenue declined from Rs. 8.8 to Rs. 3.1. With doses of representative Government, there was an increase in tax revenue combined with an expansion of social and development services. Provincial revenues increased from Rs. 70.4 crores in 1921-22 to Rs. 92.3 crores in 1935-36 or by 31 per cent, whereas the revenues of the Central Government, where little progress was made towards popular control, increased during the same period from Rs. 115.2 crores to Rs. 117.8 crores or by 2 per cent only. The grant of Provincial Autonomy and the strains of the Second World War led to a search of fresh sources of revenue and new taxes, like the excess profits tax, new excise duties, sales tax, agricultural income tax, etc., were imposed to make the tax structure more equitable and broad based. Since independence, taxation has assumed a new role as it is an important source of financing the development programme. It is, therefore, necessary to have a scientific structure of taxation which is geared to the needs of development finance.

Taxation is the most important source of Government revenue. It formed 77 per cent of the total revenue of the Union and State Governments in 1970-71 (Budget). The tax system must transfer adequate resources to the Government. Income tax assesses form about 0.5 per cent of the population in India as against about 35 per cent in the U.K. and 26.7 per cent in the U.S.A. In 1968-69, the revenue form income tax on the non-corporate sector formed 1.26 per cent of the national income in India as against 11.34 per cent in the U.S.A. Accordingly, the Government has to rely more on indirect taxes in India. To achieve equity, heavier taxes are levied on luxuries and commodities mostly consumed by the well-to-do sections of the community.*** Commodity taxes are also useful to restrict the consumption of harmful commodities, like liquors and intoxicating drugs. They also help to economize

* In 1970-71 (Budget) land revenue yielded Rs. 110 crores forming 2.46 per cent of the total tax revenue of the Union and State Governments.

** The income tax was first levied temporarily in 1860 in the form of a licence tax and finally reimposed by the Act of 1886.

*** Recent budgets of the Union Government have kept these objectives in view.

the consumption of commodities that are required for export or for the development programme. Import duties can be used to encourage import substitution and to mop up excessive profits of importers, which inevitably accrue under conditions of import control.

XI. Growth of Revenues

Estate duty was levied with effect from October 15, 1963. It is imposed on agricultural land also in those States that have authorized Parliament to do so. The present exemption limit is Rs. 50,000. The rate of tax rises from 4 per cent on the next slab of Rs. 50,000 to 85 per cent in the case of slabs exceeding Rs. 20 lakhs. Taxes on gifts and expenditure (which were imposed under the residuary powers of the Union Government and do not, therefore, apply to Jammu and Kashmir) were imposed from April 1, 1959. The Gift Tax exempts annual gifts upto Rs. 5,000. It is levied at 5 per cent on the first taxable slab of Rs. 5,000 rising to 75 per cent on slabs exceeding Rs. 20 lakhs. The Expenditure Tax, which yielded a small revenue was suspended from April 1, 1962. It was revised from the assessment year 1964-65 (that is, with respect to the expenditure incurred during the financial year 1963-64). The tax was abolished with effect from April 1, 1966. Annual expenditure upto Rs. 30,000 was exempt from tax. In the case of Hindu undivided families, the exemption limit depended upon the number of coparceners in the family, subject to a maximum of Rs. 60,000. In addition there were liberal exemptions and deductions in computing taxable expenditure. The tax was levied at 10 per cent on the first Rs. 10,000 of taxable expenditure, rising to 100 per cent on taxable expenditure exceeding Rs. 50,000. Realized capital gains, arising on or after April 1, 1956, are taxed. The first Rs. 5,000 of all capital gains plus 36 per cent of capital gains on land and buildings and 50 per cent of the capital gains on other assets are exempt from tax and the balance is added to the assessee's income. The taxpayer has the option of adopting, instead of the actual cost of the capital asset, its fair market value as on January 1, 1954. In he case of non-company assessees, capital gains are not taxed if they do not exceed Rs. 5,000 or the total income including them does not exceed Rs. 10,000. Realized capital gains of the corporate sector are taxed at the rate of 45 per cent if they accrue on lands or buildings and at 35 per cent if they accrue on other assets. The Wealth Tax was imposed from April 1, 1967. The first slab* of Rs. 2 lakhs of net wealth in the case of individuals and Rs. 4 lakhs in the case of Hindu undivided families is exempt from tax, while agricultural land was not included in

*The entire capital gains on assets held for less than two years is treated as income for tax purpose.

net wealth till 1970, thereafter any excess over 1.5 lakhs is added to net wealth. The tax rates have been increased since 1957. The present rate of tax (1971-72) rises from 1 per cent on the first slab of wealth of Rs. 1 lakh (Rs. 2 lakhs in the case of Hindu undivided families) to 8 per cent on slabs of wealth exceeding Rs. 20 lakhs. There is an additional wealth tax on urban property exceeding Rs. 5 lakhs in value. The first taxable slab of Rs. 5 lakhs is taxed at 5 per cent and the balance at 7 per cent. The revenue from wealth tax has increased from R 8.15 crores in 1960-61 to Rs. 30 crores in 1971-72 (Budget).

Prior to the reform in company taxation, corporate incomes were subject to an income tax and a corporation tax (known as super tax on companies) and neither was allowed as a deduction in computing the other tax. In the case of profits distributed as dividends each share-holder was given in his assessment a credit for the amount of income tax (but not the super tax on companies) paid by the company that was attributable to the dividend received by him. This process of increasing the dividend income of a share-holder by the amount of income tax paid by the company on that part of its income, was known as 'grossing'. Thus, on profits distributed as dividends, the company was supposed to have paid the income tax on behalf of its share-holders. The 'grossing' process involved several complications. The share-holder was given credit at the average rate of income tax paid by the company and it was, therefore, necessary to find out how much of the dividend came out of taxed profits and how much, if any, out of profits exempt from income tax, and whether any part of it was paid out of profits of earlier years, which may have been taxed at different rates. These calculations involved delay in the assessment of share-holders, specially if they received dividends from several companies. The budget for 1959-60 abolished this 'grossing' process. As a part of the scheme of a simplification of company taxation, the wealth tax on companies and the excess dividends tax were abolished, though the tax on bonus shares was retained. It was levied at the rate of 30 per cent. The rate of the tax was reduced to 12½ per cent from April 1, 1961. The Finance Act, 1966 abolished the tax with a view to encourage the ploughing back of profits which may later be capitalized. Bonus shares were not taxable in the hands of the share-holders*.

Under the new scheme, companies deduct income tax, which is deposited by them with the Government, at a flat rate (at present 23 per cent) from dividends paid by them and credit for this is given to share-holders in their assessments. Thereafter, corporate profits were, strictly speaking, subject to a single non-refundable tax. No part of it was

*The concession was withdrawn from April 1, 1964, except in the case of bonus shares issued wholly out of share premium account.

paid on behalf of the share-holders of a company. The annual Finance Act, however, continued till 1964 the fiction of an income tax and a super tax on companies. Both were really a corporation tax and were so treated by the Government. From 1965, the annual Finance Act speaks of an income tax on companies. The terminology is misleading as under the Constitution, taxes on income (other than agricultural income) are shared with the States, while the corporation tax is assigned exclusively to the Union Government. While the Government of India treats the income tax on companies as a corporation tax,it is desirable (perhaps necessary) that the annual Finance Act should use the term corporation tax instead of income-tax on companies. An important effect of the new scheme has been the shrinkage of the divisible pool of income tax, which is not shared with the States. The reform in the scheme of company taxation was intended to simplify the taxation of corporate profits, but the Government of India used it to increase revenue also. The yield from the corporation tax has increased more rapidly than from the income tax. The corporation tax is levied at the rate of 55 per cent* on the profits of Indian companies. The rate of tax is 70 per cent** in the case of foreign companies as their share-holders are not assessed to taxes on income.

In 1963, an additional Super Profit Tax was imposed on the corporate sector at 50 per cent on residual income (that is, after payment of corporation tax) that exceeded 6 per cent of the paid up capital and reserves. The rate of tax was 60 per cent on that part of residual income which exceeded 10 per cent of the paid up capital and reserves. Subject to certain conditions, 10 per cent of residual income was exempt from tax.

The Super Profit Tax proved unpopular because, among other things, of the uneven nature of its effect on industry as a whole. To some extent, it affected industrial growth. Accordingly, the Super Profit Tax Act was suspended forom April 1, 1964, and in its place a surtax was levied. The Act was repealed with effect from April 1, 1966.

The Company (Profits) Surtax Act, 1964 imposed a new tax in place of the Super Profit Tax. The new Act provided for lower tax rates, a larger standard deduction and a wider capital base. The surtax is applicable on corporate income from all sources, after deducting income and super tax payable on it that exceeds 10 per cent of the capital base or Rs. 2 lakhs, whichever is more. It was levied at a uniform rate of 40 per cent on the entire profits subject to surtax. The Act also provides for a rebate of 20 per cent of the surtax on profits derived from certain basic and

*If the income does not exceed Rs. 50,000, the rate of tax is 45 per cent. The rate of tax in the case of private limited companies is 65 per cent, but in the case of industrial companies the tax is levied at 55 per cent on the first Rs. 10 lakhs of income and at 60 per cent on the excess.

**This is the rate at which most taxable corporate profits are taxed.

capital inensive industries that have relatively low profitability and longer gestation period. These are given in the Third Schedule to the Act and include, amongst others, iron and steel, aluminium, copper, coal, cement, paper and pulp, tea, coffee and rubber, generation and distribution of electricity, etc. The finance Act, 1966 reduced the rate of surtax to 35 per cent. In view of the fact that the Finance Act, 1966 provided for a deduction of 8 per cent of the profits derived by a company from priority industries in the computation of their total income, the provision of 20 per cent rebate of surtax to these industries was deleted. The Finance Act, 1968 reduced the rate of surtax to 25 per cent with effect from the assessment year 1969-70. The rate of surtax was increased to 30 per cent on chargeable profits for the corporate sector that are in excess of 15 per cent of capital with effect from the assessment year 1972-73 (that is, with respect to the financial year 1971-72).

The income of the non-corporate sector was subject to two taxes, income tax and the super taxes,* and neither was allowed as a rebate computing the tax liability under the other. In accordance with the constitutional provision, agricultural income** is exempt from these taxes and this introduces great inequity in the tax systemy. In order to simplify tax calculation, the super tax was merged with the income tax in 1965 when a new rate schedule was prescribed. The tax rates have since been increased and are at present as under (the assessment year 1971-72):

1.	Where the total income does not exceed Rs. 5,000	Nil
2.	Where the total income exceeds Rs. 5,000 but does not exceed Rs. 10,000	10 per cent of the amount by which the total income exceeds Rs. 5,000.
3.	Where the toal income exceeds Rs. 10,000 but does not exceed Rs. 15,000	Rs. 500 plus 17 per cent of the amount by which the total income exceeds Rs. 100,00.
4.	Where the total income exceeds Rs. 15,000 but does not exceed Rs. 20,000	Rs. 1,350 plus 23 per cent of the amount by which the total income exceeds Rs. 15,000.
5	Where the total income exceeds Rs. 20,000 but does not exceed Rs. 25,000	Rs. 2,500 plus 30 per cent of the amount by which the total income exceeds Rs. 20,000.
6.	Where the total income exceeds Rs. 25,000 but does not exceed Rs. 30,000	Rs. 4,000 plus 40 per cent of the amount by which the total income exceeds Rs. 25,000.

*The rate structure of both these taxes for all slabs of income has been revised upwards several times in recent years. The 1939, the combined maximum rate of both these taxes was 9½ annas in the rupee (that is, 59.37 per cent) on slabs of income exceeding Rs. 5 lakhs. In 1947, the combined maximum rate of both these taxes was raised to 15½ annas per rupee (that is, 96.875 per cent) on slabs of income exceeding Rs. 1.2 lakhs of unearned incomes and Rs. 1.5 lakhs of earned incomes.

**Agricultural income can be taxed by the States and is subject to a separate tax in several States. The tax rates are relatively less severe. Further, it is a great advantage, under a progressive rate schedule, to have income split into two different categories subject to two different taxes.

7.	Where the total income exceeds Rs. 30,000 but does not exceed Rs. 40,000	Rs. 6,000 plus 50 per cent of the amount by which the total income exceeds Rs. 30,000.
8.	Where the total income exceeds Rs. 40,000 but does not exceed Rs. 60,000	Rs. 11,000 plus 60 per cent of the amount by which the total income exceeds Rs. 40.000
9.	Where the total income exceeds Rs. 60,000 but does not exceed Rs. 80,000	Rs. 23,000 plus 70 per cent of the amount by which the total income exceeds Rs. 60,000.
10.	Where the total income exceeds Rs. 80,000 but does not exceed Rs. 1,00,000	Rs. 37,000 plus 75 per cent of the amount by which the total income exceeds Rs. 80,000.
11.	Where the total income exceeds Rs. 1,00,000 but does not exceed Rs. 2,00,000	Rs. 52,000 plus 80 per cent of the amount by which the total income exceeds Rs. 1,00,000.
12.	Where the total income exceeds Rs. 2,00,000	Rs. 1,32,000 plus 85 per cent of the amount by which the total income exceeds Rs. 2,00,000.

The rates of tax are different for co-operative societies, registered firms (that is, those firms which are registered with the Income Tax Department), business carried on by local authorities and companies. The income of charitable, religious and approved scientific research institutions is exempt from tax. From 1961 the income of approved sports associations that satisfy certain specified conditions is also exempt from tax.

In addition to the above rates of tax, there is a central surcharge of 10 per cent of the total tax. The rate of the surcharge was increased to 15 per cent of the tax with effect from the assessment year 1972-73 in the case of income exceeding Rs. 15,000.

The present income tax exemption limit is Rs. 5,000 (assessment year 1971-72) for individuals and Rs. 7,000 for Hindu undivided families. Earlier, the exemption limit was Rs. 2,000, but it was redued to Rs. 1,000 by emergency budget of September 1931. The budget for 1936-37 again raised the limit to Rs. 2,000. However, the exemption limit was again reduced to Rs. 1,500 in the budget for 1942-43. The exemption limit was raised to Rs. 2,000 in the budget for 1944-45 and to Rs. 2.500 by the Finance Act of 1947. In 1948-49 the exemption limit was further raised to Rs. 3,000. The Finance Act of 1950 raised the exemption limit to Rs. 3,600 for individuals and to Rs. 7,200 for Hindu undivided familis. These limits were raised to Rs. 4,200 and Rs. 8,400 in the budget for 1963-64. However, in 1957, these limits were reduced to Rs. 3,000 and Rs. 6,000 respectively. In 1966, to give relief to low income groups, the limits were increased to Rs 3.500 and Rs. 6,500 respectively. Subsequently, the Finance Minister announced on April 29, 1966 to further increase these limits to Rs. 4,000 and Rs. 7,000 respectively. The exemption limit for individuals was raised to Rs. 5,000 with effect

from the assessment year 1971-72 (that is, for incomes earned during the financial year 1970-71).

The rates of income tax are not laid down in the IncomeTax Act. They are prescribed every year by the Annual Finance Act. The result is, there are too frequent changes in the rates of tax.

There are certain incentives in the income tax scheme. Since 1948, donations made to approved charitable institutions are allowed a rebate of tax. At present, the maximum qualifying amount is 10 per cent of income or Rs. 2 lakhs, whichever is less. Corporate and non-corporate donors are allowed to deduct 50 per cent and 55 per cent respectively as the qualifying amount of the donations from their total income. After the Second World War, concessions were granted to provide incentives for investment. In 1946, the Finance Member introduced the grant of special initial depreciation allowances. These were replaced in 1955 by a development rebate, whereby a part of the cost of new plant and machinery is allowed as a deduction from income, without a corresponding reduction in its written down value for purposes of the depreciation allowance. The Finance Minister gave notice in May 1971 that the development rebate will not be allowed on new ships purchased or plants and machinery installed after May 31, 1974. He expected this advance notice to accelerate the rate of investment in the remaining years of the Fourth Plan.

In the case of priority industries (numbering 29, curtailed to 23, with effect from the assessment year 1972-73), 8 per cent (reduced to 5 per cent with effect from the assessment year 1973-72) of the profits are exempt from tax. As an incentive to savings and investment, paymnet of Life Insurance premiums and contributions to recognized Provident Funds and to Post-Office 10 and 15 years Cumulative Deposit Scheme are entitled to rebate of tax. However, only individuals are entitled to rebate on these postal deposits and not Hindu undivided families. The monetary limit for such qualified savings is 30 per cent of income subject to a maximum of Rs. 30,000 for Hindu undivided families and Rs. 15,000 in the case of individuals. With effect from the assessment year 1972-73, the qualifying limit for individuals was increased to Rs. 20,000. At present, 60 per cent of the first Rs. 5,000 of the qualifying savings plus 50 per cent of the balance is deducted from taxable income of the assessee. From the assessment year 1972-73, the whole of Rs. 1,000 of the qualifying saving plus 50 per cent of the next Rs. 4,000 plus 40 per cent of the remainder would be deducted from taxable income. Individuals and Hindu undivided families are also allowed to deduct upto Rs. 3,000 from their taxable income provided the income is from investments in Government securities, shares in Indian companies, units in the Unit Trust of India, deposits with banking companies, etc. Salaried persons are also allowed to deduct expenses of travelling to their place of work.

The deduction is Rs. 200 per month for those maintaing a car, Rs. 60 per month for those maintaining a motor-cycle and scooter and Rs. 35* per month for others.

All newly established undertakings enjoy a tax holiday for five years following the year in which they begin production, subject to a limit of 6 per cent of the capital employed. Dividends declared out of such profits are exempt from tax in the hands of share-holders whether individuals or companies. There is a rebate of tax on the excess of production over the past year, so also on exports. Foreign technicians, whose contract of service has been approved by the Government of India before the commencement of their service in India, enjoy tax concessions. To encourage scientific research in the country, expenditure incurred on it is deductable from taxable income. There are incentives for shifting industries from thickly populated areas. To encourage construction of new buildings, a deduction of Rs. 1,200 or the annual value of the building, whichever is less,is deducted from income for a period of three consecutive years from the completion of the building. There are enhanced depreciation allowances to encourage employers to construct housing accommodation for the benefit of their low paid employees. From 1964, the income derived from the business of livestock breeding or dairy farming, is exempt from tax for three years. There are tax concessions to new industrial undertakings mainly employing displaced persons from Pakistan and repatriates from Burma, Sri Lanka, Mozambique or any other foreign country notified by the Government of India. There are tax concessions also for encouraging tourism in the country.

Customs revenue has lost its predominant position. In 1938-39, it was the most important source of revenue, yielding Rs. 38.91 crores and forming 53.7 per cent of the total tax revenue collected by the Government of India. Most of the duties are *ad valorem*, so that the revenue fluctuates with price changes and changes in the value of imports. Since the Second World War, the rates of import duty have been frequently revised upwards to yield larger revenue. When new excise duties are imposed on indigenous commodities, equivalent import duties are levied on similar imported products so that the indigenous producer is not adversely affected. Similarly, every increase in excise duties is accompanied by a corresponding increase in countervailing import duties. Following devaluation of the rupee in September 1949 and again after the Korean War, the Government of India isolated the internal prices from the export markets by imposing new export duties and increasing the existing ones**,. Accordingly, the revenue from export duties shot up to

*Increased to Rs. 75 and Rs. 50 respectively with effect from the assessment year 1972-73.

**A similar 'policy was followed after the devaluation of the rupee in June 1966 and the revenue from export duties shot up to Rs. 130.42 crores in 1967-68.

Rs. 90.74 crores in 1951-52. The heavy decline in the revenue thereafter reflects the gradual disappearance of the gap between the external and internal prices of our important exports. Owing to the abolition of most of the export duties, the yield from them was Rs. 2.14 crores in 1965-66, which shows that they are not a dependable source of revenue.

The history of protective tariffs begins with the adoption of the policy of discriminating protection in 1923. Their relative contribution to the revenue from import duties fell from 41 per cent in 1926-27 to 15 per cent in 1936-37 and to 0.54 per cent in 1971-72 (Budget). The contribution of customs revenue to the total tax revenue collected by the Government of India has declined to 15.5 per cent in 1971-72 (Budget), which is a reflection of the growth and diversification of the industrial structure of the country and its balance of payments difficulties, which have necessitated a tight import control. In recent years, import duties have been used to encourage import substitution and to mop up excessive profits of importers. As the industrial development of the country progresses, they are likely to be relatively unimportant source of revenue. In the U.S.A., customs revenue formed 53 per cent of the federal tax revenue during 1901-10. This percentage has now declined to 1.

Union excise duties levied at the manufacturing or production stage, have now become the mainstay of federal revenues. Their growth also reflects that the country's industrial structure has grown impressively. They have developed during the last two decades. Due to pressure from Lancashire an excise duty on cotton yarn was imposed in 1894. It was changed into an excise on mill-made cloth in 1896 and was abolished in 1926. Of the present excises, the earliest on motor spirit was imposed in 1917 and on kerosene in 1922. In 1934, new excise duties were imposed on sugar, matches and steel ingots. A few new excises were levied during the Second World War. Their coverage has been extended since independence. The rates of duty have also been increased several times. These duties yielded Rs. 8.66 crores in 1938-39, forming 11.5 per cent of the total tax revenue collected by the Government of India. This percentage increased to 46.5 in 1960-61 and to 60.4 in 1971-72 (Budget). They are now imposed on more than hundred commodities. The recommendations of the Excise Reorganization Committee (1960-63) have helped to simplify the structure and administration of the Union excise duties.

To check evasion and to simplify the tax procedure, the State Governments agreed in 1957 to withdraw sales tax on mill-made textiles (cotton, rayon, artificial silk and woolen fabrics), sugar and tobacco (including manufactured tobacco) and in lieu of the sales tax the Government of India levied additional duties of excise on these commodities. Their net proceeds are distributed among the States. In view of the success of this measure, the trade has persistently demanded extension of the

scheme. The Union Government has also lent its influence to this demand. The State Governments have refused to proceed further in this direction as they fear loss of fiscal independence. However, they agreed to include silk fabrics in the scheme in 1961-62. The yield from the additional excise duties has increased from Rs. 33.60 crores in 1960-61 to Rs. 78.81 in 1971-72 (Budget).

The sales tax was first levied in 1939 in Tamil Nadu. It is now levied in all the States and is the most elastic and productive source of State taxation, yielding 50.2 per cent of the tax revenue collected by them in 1971-72 (Budget). It is, strictly speaking, not a general sales tax as some commodities are exempt from tax and some are taxed at higher rates. In several States, foodgrains are not taxed, while luxury articles are taxed at about 10 to 16 per cent. The structure of the tax, as also its rates, vary from State to State. Some States levy a single point tax, generally at 5 to 7 per cent, while others levy a multiple point tax at 0.5 to 3 per cent. Motor spirit is taxed separately in all the States*. The Central Provinces was the first State to tax in 1938. West Bengal levies a purchase tax on raw jute, while Andhra Pradesh, Bihar, Maharashtra, Karnataka and Uttar Pradesh levy a cess on sugar-cane purchased by sugar mills. These taxes are levied on purchases as they are organized and are few in number.

Articles 286 of the Constitution imposed certain restrictions on the powers of the States to levy sales or purchase tax. These restrictions relate to sales or purchases made outside the State or in the course of import of the goods into, or export of the goods out of, the Indian Union. The former is intended to ensure freedom of inter-State trade and to prevent a State from taxing consumers in other States. The latter safeguards the power of the Union Government to tax imports and exports. The Article also prevents the States from levying a sales or purchase tax on any article declared by Parliament to be essential for the life of the community, unless such legislation received the assent of the President. The interpretation of Article 286 by the Supreme Court led to several difficulties. Accordingly, the Constitution was amended in 1956. As a result of the amendment, the Union Government acquired legislative powers to levy taxes on the sale or purchase of goods, where such a transaction takes place in the course of inter-State trade. Parliament was also given powers to formulate principles to determine when a sale or purchase takes place outside a State or in the course of import or export. Parliament also acquired authority to impose restrictions on the powers of the States to levy taxes on the sale or purchase of goods declared by it to be of special importance in inter-State trade or com-

* Except Rajasthan, where the selective sales tax on motor spirit was merged with the general sales tax in March 1969.

merce. Following the Constitutional amendment, Parliament passed the Central Sales Tax Act (1957). It imposed a tax of 1 per cent (increased to 2 per cent with effect from April 1, 1963 and 3 per cent with effect from July 1, 1966) on inter-State sales to registered dealers.

In the case of sales to unregistered dealers or consumers in other States the rate of tax, on goods not on special importance in inter-State trade, is 7 per cent* or the rate on which the sale or purchase of such goods is taxed inside the exporting State, whichever is higher of the two. The Act declares some essential raw materials as goods of special importance for inter-State trade and commerce and imposes some restrictions on the powers of the States to levy taxes on the sale or purchase of such goods. Under the Act, the Government of the exporting States are authorized to assess and collect the tax. The tax proceeds are also retained by them and are included under general sales tax revenue**.

The assessment of the Central Sales tax is done by the same State officials who assess the general sales tax.

Land revenue has lost its earlier importance and now yields only 6.3 per cent of the tax revenue collected by the States. This is chiefly due to the abolition of intermediaries in land.The yield has also increased due to the impositon of betterment levies and surcharges in several States. There is need to reform the structure of the tax. At present, it is levied on agricultural land at a flat rate on its net produce without any exemption limit. The levy varies with grades of land, as it is related to net produce. It has been a very inelastic source of revenue. Its percentage contribution to the total tax revenue of the Central and State Governments was 7.9 in 1950-51 and 2.0 in 1971-72 (Budget) as against 38.6 in 1900-01. Since the Second World War, the price of agricultural produce has greatly increased, but there has been hardly any increase in the land revenue assessment. The assessment is revised after a resettlement which involves a detailed survey of agricultural land and imposes heavy additional work on the district administration. Resettlement has not been possible in most States due to the pressure during Second World War and the growth of the development programme thereafter. Most of the new taxes are also borne by the non-agricultural sector. The agricultural sector has, therefore, greatly improved its relative position. Studies made about the incidence of taxation by the Taxation Enquiry Commission for 1953-54 and the Department of Economic Affairs, Ministry of Finance, for 1958-59 and 1963-64 show that the burden of taxation is relatively less, for all levels of income, on the rural sector of the economy. On the other hand, most of the developmnt expenditure under the Plan is rural/agricultural

*Increased to 10 per cent with effect from April 1, 1963.

**The revenue from the Central Sales Tax was Rs. 150.04 crores in 1971-72 (Budget).

oriented. Thus public finance results in inequity between the agricultural and the non-agricultural sectors.

Prohibition has resulted in the loss of an annual revenue of about Rs. 100 crores from State excise duties. Complete prohibition has not been enforced in all the States due to revenue and administrative considerations. Some States introduced complete prohibition, some others introduced it in selected towns and areas, while some others have not introduced it in any area. Even non-prohibition States have schemes of reducing the consumption of liquor and intoxicating drugs. The free sale of opium, is, however, prohibited in all the States. State excise duties are levied on the production and sale of alcoholic drugs and intoxicating drugs. The rates of excise duties on these commodities vary from State to State. The drink habit is generally confined to industrial workers and members of some backward communities. The incidence of tax, therefore, falls mostly on the poorer classes and prohibition can be viewed as a fiscal reform. These excise duties have always been levied for regulating the consumption of liquor and the aim has been to raise maximum revenue while trying to maintain consumption at as low a level as possible. These duties yielded a revenue of Rs. 208.59 crores in 1971-72 (Budget) as against Rs. 47.34 crores in 1950-51. Prohibition has greatly increased smuggling and illicit distillation*.

Stamp duty includes the revenue from court fees and probate duties on letters of administration and succeession certificates. It also includes the revenue from non-judicial stamps affixed on instruments relating to transfer of property or other commercial transactions. The rate of duty varies from State to State except in the case of documents where the rates are fixed by the Union Government. In the case of some documents, the duty is *ad valorem*, while on others it is, a fixed sum. It is difficult to determine the incidence of stamp duty as also of court fees. Their rates have been increased frequently to raise more revenue. The registration revenue consists of fees levied on the registration of documents, a permanent record of which is maintained by the Government. These fees are different in different States.

Motor vehicles taxes are levied in all the states for registration and transfer of ownership of motor vehicles and for issuing licences for driving such vehicles. These taxes were originally levied for regulatory purposes, but are now a source of revenue. The revenue from them has increased almost thirteen times since 1950-51. The Motor Vehicle Taxation Enquiry Committee (1950) recommended that, "a licence granted in one State should be valid, if an endorsement to travel in another State is granted, without the payment of further taxes." Most States

* Madras (Tamil Nadu), which was the first State to enforce prohibition, repealed the dry law with effect from August 30, 1971. Some other States have also partially retraced their steps.

levy fees or taxes on the entry of passenger and transport buses registered in other States. This creates a barrier to inter-State transport as buses are discouraged to play on inter-State routes.

Electricity duties are recovered from electric supply companies,who collect them from their consumers. Usually industrial consumers are taxed at a lower rate. The tax does not hit the poor people, who usually use kerosene for lighting their houses. Bombay was the first State to levy the tax in 1932. It is now levied in all the States except Assam and Jammu and Kashmir. The entertainment tax is levied in all the States on the value of tickets to places of entertainment. Entertainments of a wholly educational character or for the advancement of agriculture, industry or public health are generally exempt from tax. The tax is also not levied if the entire proceeds are earmarked for charitable or philanthropic purposes.

The urban immovable property tax is levied in Gujarat, Haryana, Jammu and Kashmir, Kerala, Madhya Pradesh, Maharashtra, Karnataka, Punjab, Tamil Nadu and West Bengal.

XII. Public Debt Policies and Programme

The origin of the public debt in India dates from the French wars in the South during the second half of the 18th century. The East India Company continuously financed its increasing military expenditure by borrowing. It raised loans for its commercial activities also. This debt was not kept separate since the Company regarded its Indian conquests as an income-yielding estate. Even after the separation of the Company's commercial and territorial accounts in 1819 certain items of expenditure definitely relating to the former were debited to the latter. Accordingly, the Company's debt increased to Rs. 63·6 crores. This debt, which was incurred to finance the commercial activities of the Company or to annex the territories of India and was thus part of the cost of acquiring the Empire, was treated as India's public debt when the Empire was acquired by the Crown. In addition, £12 million paid to the proprietors of the East India Company stock was also added ot it. Most of the Company's debt was raised in India — only about 5 per cent of it was sterling debt. Originally, even the India debt was owned by the British, but by the end of the Company's rule about a third of it was held by Indians.

The Company hardly borrowed for productive purposes. In 1867-68 the Government of India began to raise loans for irrigation works and in 1870 this policy was extended for constructing railways by the Government itself. The Government of India also financed capital expenditure out of current revenues or budgetary surpluses and from the annual provision for famine insurance. The result was that the net excess of

debt over productive assets had declined to Rs. 33 crores by the end of March 1902 and to Rs. 3 crores by March 31, 1916. Thereafter, the unproductive debt increased on account of deficits on revenue account due to increased military expenditure* and India's war contribution of £100 million.

So far only the Central Government had a right to raise market loans. Under the Government of India Act (1919), the Provincial Governments were allowed to raise loans on the security of their revenues subject to the sanction of the Governor-General in Council in the case of rupee loans and of the Secretary of State for India in the case of foreign loans. They could, however, borrow only for "any work or permanent asset of a material character in connection with a project of lasting public utility" provided the expenditure was too large to be met from current revenue. Loans could also be raised for famine relief and the Provincial Loan Account subject to certain conditions. Till the inauguration of Provincial Autonomy, Bombay, Uttar Pradesh and the Punjab took advantage of these powers to raise rupee loans. The Government of India Act (1935), authorized the provinces to raise foreign loans with the consent of the Central Government. Such consent was also necessary for internal loans in case a province owed any debt to the Government of India or in respect of which it had given a guarantee. The provincial balances were decentralized, though a part of them were adjusted against the loans outstanding to the Government of India. After cancelling, wholly or partly, the debt of some of the provinces, as special financial assistance to them the balance was repayable in semi-annual equated payments of interest and principal in 45 years. In future, the provinces were to meet their short-term requirements from the Reserve Bank of India or through the issue of Treasury Bills — a form of borrowing commenced by them in 1938-39.

Under the Indian Constitution, the States are prohibited from borrowing abroad in order to give complete control of foreign affairs to the Union Government. A State can borrow within India upon the security of its Consolidated Fund. However, it has to obtain the consent of the Government of India if it owes a debt to it or for which it has given guarantee. The Reserve Bank of India manages the debt operations of the Union and State Governments and co-ordinates their borrowing programmes. All the States are indebted to the Union Government and have, therefore, to obtain its consent to raise market loans. This consent may be given subject to such conditions as the Union Government may deem fit to impose. This provision helps in fixing the timing and volume of State loans and avoids competition.

*During the First World War, India had to meet an expeniture of about Rs. 87.5 crores for Imperial purposes.

Throughout the British regime, the Government followed a conservative public debt policy. It never borrowed to finance non-revenue yielding social and development expenditure. Even productive capital expenditure was at times financed out of current revenue so that at the end of 1938-39 against interest bearing obligations of Rs. 1,205.76 crores the Government of India held interest yielding assets of Rs. 946.38 crores, and 30.30 crores in cash and securities on Treasury account, so that the uncovered part was Rs. 229.08 crores. Even this was due to the heavy expenditure thrust on India by Imperialist wars and the war contribution of £ 100 million. For the first time, a sinking fund was established for the 5 per cent War Loan of 1917. In December 1924, at the initiative of the Finance Member, Sir Basil Blackett, the Central Assembly accepted a definite scheme of sinking fund. Since then, an annual provision is made in the revenue budget for 'reduction or avoidance of debt'. Since 1945-46 this provision has been Rs. 5 crores. This annual provision was discontinued from 1970-71 in consultation with the Comptroller and Auditor-General.

The Government of India financed the Second World War mainly on a 3 per cent basis, although in pursuance of the cheap money policy it progressively improved the terms of borrowing through a reduction in the rate of interest or an increase in the period of maturity or a rise in the issue price of loans. Its public debt policy failed to raise adequate funds to meet its own requirements as also the Allied expenditure, including recoverable war expenditure*. incurred in India. The rupee obligations of the Government of India increased from Rs. 736.64 crores on March 31, 1939 to Rs. 2,245.10 crores on March 31, 1946.** During the same period, its budgetary deficits were Rs. 604.88 crores and capital outlay, outside the revenue account, Rs. 294.36 crores. Since its rupee incomings were far in excess of its own requirements, its cash balance increased from Rs. 13.14 crores to Rs. 529.53 crores. In spite of this, inflationary conditions developed in the country. The Reserve Bank of India provided rupees against sterling to finance Allied expenditure in India and this became a source of weakness to the rupee. The issue of currency depended on the rupee requirements of the Allied Governments. It resulted in an accumulation of blocked sterling balances and an increase in currency circulation that led to a fall in the international purchasing power of the rupee. This amounted to a compulsory loan to the British Government. During the war, this arrangement was anti-inflationary for the British economy. Further, while the Government

*During the period 1939-40 to 1946-47, the total recoverable war expenditure was Rs. 1,791.35 crores.

**During the same period, the intrest bearing obligations in England declined from Rs. 469.12 to Rs. 63.38 crores.

of Inida borrowed at about 3 per cent, the sterling balances earned a meager ½ per cent or so as they were invested in the U.K. Treasury Bills. This was an additional burden imposed on India. However, the Government of India repatriated its sterling debt and made advance payments for its sterling liabilities on account of railway annuities, pensions, provident funds, etc. The Government paid an average of 3.36 per cent on its sterling debt, whereas the sterling balances, used to repatriate this debt, earned much less.

Since independence, there has been no change in the importance of rising internal loans. The Government is committed to a large development programme and its success in raising loans reduces dependence on deficit financing. It has also tried to raise large loans from I.B.R.D. (International Bank for Reconstruction and Development, also known as the World Bank) and friendly foreign countries to finance the foreign exchange component of the development programme. The response to the Government's internal borrowing programme has, however, been poor. There was a net outgo on permanent debt account, the outstanding rupee loans having declined in March 1956 as compared to March, 1948. The response has since been better. During the five years ending March 1963, net realizations from rupee loans were Rs. 859.39 crores and from unfunded debt, which includes provident fund receipts and Postal deposits, Rs. 961.98 crores. During the five years ending 1971-72 (Budget), the net increase in the permanent rupee debit of the Government of India was Rs. 994.58, in the floating debt (including Treasury Bills) was Rs. 817.48 crores, in the unfunded debt (including small savings schemes Rs. 682.36 crores) Rs. 1,125.21 crores and in the reserve funds and deposits Rs. 550.45 crores. Owing to the insufficiency of loans finance, the Government of India had large deficits in its capital budget. Consequently, despite surpluses on revenue account there have been overall deficits. These have been financed through the sale of Treasury Bills to the Reserve Bank of India, resulting in expansion of currency and rise in prices. Since independence, the terms of borrowing have progressively been against the Government, which allowed the dried up springs of loanable funds to revive and did not increase the rate of interest beyond 3 per cent till 1953, though better terms were offered. The effective rate of interest, however, increased due to a fall in the price of Government loans. For instance, the market price of 3 per cent Rupee Paper fell from Rs. 97.88 in March 1948 to Rs. 92.69 in October 1951, yielding a return of 3.24 per cent. The Government of India had to offer 3½ per cent interest on National Plan Bonds, 1961 issued at Rs. 98.25 in June 1953. The terms of borrowing have since become more adverse. In November 1962, a medium-dated loan repayable in 1972 was offered at

4½ per cent, while a long-dated loan repayable in 1985 was isued in July 1962 at 4½ per cent. The Government also increased the rate of interest on Post-Office Savings Bank deposits to 3 per cent in August 1962. The rates of return on other forms of Postal deposits were also increased. The rate of interest was further increased when in July 1964 the Government of India issued a 25 year loan at 5½ per cent. With effect from April 1, 1965 the interest on Post-Office Savings Bank deposits was increased to 4 per cent. Similar increases were affected on other forms of Postal deposits also. The rate of interest on fresh loans was further increased in 1971, when in June 1971, and October 1971 the Government of India issued the short-dated loan 1978 at 4.75 per cent, the medium-dated loan 1986 at 5.25 per cent and the long-dated loan 2001 at 5.75 per cent (all at par)

The rupee and foreign debt liabilities of the Government of India have increased rapidly since independence and this in turn has increased the the Government's interest bill. In this connection, it is relevant to examine the maturity pattern of the Government of India loans. Of the total rupee loans*, 40.8 per cent mature within 5 years and another 14.6 per cent within a further period of 5 years. Only 38.3 per cent mature after 10 years and the remaining 6.3 per cent are undated loans. Most of the debt liabilities are covered by assets. The development grants to the States have also resulted in material assets. The Government owns museums, research laboratories, buildings and other properties as well.

The States are increasingly dependent on the Centre even for loan finance. Their debt has increased rapidly, though most of it is covered by remunerative capital assets.

XIII. Financial Organization and Controls

The Government of India did not have a separate finance department till 1843. The post of a Financial Member of the Governor-General's Council was created in 1859. The origin of the budget system dates from February 19, 1860 when the first Finance Member, Sir James Wilson, presented his budget to the Legislative Council. The Indian Councils Act of 1892 granted to the Legislative Council the right to discuss the budget. From 1871-72, the provinces had separate budgets, which were appended to the Central budget. They were entirely separated under the Reforms of 1919 and from 1921-22 provincial transactions were not included in the Central budget. Popular control, except on expenditure charged on the revenue, was extended under Provincial Autonomy in 1937, when the Provincial Governments became res-

*As at the end of March 1970.

ponsible to their legislatures. The Governor could restore any cut, if in his considered opinion, was essential for the discharge of his special responsibilities. At the Centre, the expenditure on defence, external and ecclesiastical affairs, tribal areas, etc. was non-votable and the Governor-General had powers to restore any cut, if necessary, for the discharge of his special responsibilities, which were much wider than those of the Governors. Since the abolition of the Company's rule in 1858, the Governor-General was under the overall control of the Secretary of State for India, who was responsible to the British Parliament.

Under the Constitution, adopted in 1950, an 'annual financial statement' or the budget has* to be placed before both Houses of Parliament. It has to distinguish transactions relating to the Consolidated Fund from those relating to the Public Account. All revenues, loans etc., received by the Government are credited to the Consolidated Fund, while the Public Account contains transactions of a banking nature and withdrawals therefrom do not require the sanction of Parliament. The statement has also to distinguish expenditure on revenue account from capital expenditure and so, in fact, there is provision for a capital budget distinct from the revenue budget. No money can be withdrawn from the Consolidated Fund except on the sanction of Parliament. However, the following expenditure is charged on the Consolidated Fund: (a) servicing of the public debt, (b) salaries and allowances of the President and the expenditure of his office, (c) salaries and allowances of the Speaker and Deputy Speaker of the Lok Sabha (the Lower House) and of the Chairman and Deputy Chairman of the Rajya Sabha (the Upper House), (d) salaries etc., of the Judges of the Supreme Court and the Comptroller and Auditor-General and the expenses of his office, (e) privy purses** of the former Princely Rulers, etc. There are similar provisions in the Constitution with respect to the States.

The Constitution provides that no tax can be 'levied or collected except by authority of law'. A money bill can only be introduced in the Lower House on the recommendation of the President or the Governor as the case may be. This makes the Ministry solely responsible for taxation and expenditure. The legislature cannot force it to spend more though it can reduce or reject a demand for grant. The budget speech of the Finance Minister contains all the new financial proposals of the Ministry and evokes great public interest, as they will certainly be enacted by the legislature, unless the Ministry agrees to modify them. This is possible as the Ministry enjoys the support of the legislature, otherwise a new

*The Central budget is presented on the last day of February. The Railway budget is presented separately before the general budget, which incorporates these figures in lumpsum.

**The Government of India has since abolished the privy purses and privileges of the former Princely Rulers.

Ministry will be formed. Yet the control of the legislature is supreme as nothing can be raised or spent except through its sanction. For unforseen emergencies, there is a Contingency Fund from which the Government can incur expenditure pending sanction of the legislature. The Contingency Fund is recouped through supplementary demands for grants. Thus the Ministry has not to run to the legislature every time it has to incur expenditure not provided in the original estimates. The device of supplementary grants may, however, encourage careless budgeting. The estimates of expenditure are presented to the Lower House in the form of Demands for Grants, except for such expenditure as is 'charged' on the Consolidated Fund. After the demands have been voted, the money required to meet them as also for 'charged' expenditure is withdrawn on the authority of an Appropriation Act passed annually by the legislature. As this takes time, the legislature appropriates, at the beginning of each financial year, some funds for the interim period through a 'Vote on Account'. A separate Finance Act is passed incorporating the tax proposals of the budget. The Government has authority to meet excess expediture under one sub-head of a demand from savings under another sub-head, provided it is within the total demand except that savings in 'charged' expenditure cannot be utilized for excess expenditure under 'voted' heads.

To ensure that the wishes of the legislature are carried out, there is provision for independent audit. The terms of appointment of the Comptroller and Auditor-General, who is appointed by the President, cannot be varied during his tenure. His emoluments and the expenses of his office are charges on the Consolidted Fund. After he ceases to hold office, he is ineligible to hold any paid office under the Union or State Governments. Thus, his independence is complete and he has to seek no favour from the Government. Audit is a federal responsibility and this ensures uniformity in the maintenance of accounts in accordance with the standard classification laid down in the All India List of Major and Minor Heads of Account, published by the Comptroller and Auditor-General. The Government accounts represent the actual cash receipt and disbursements during the financial year ending March 31, when any unspent grants lapse and fresh sanction is necessary. Before 1867, the financial year ended on April 30, so that the accounts for 1866-67 relate to 11 months only. Prior to financial integration the Princely States had different financial years. Their accounting classifications were also different.

The Union and State legislatures have two committees, composed of their members, who act as watch-dogs over the financial transactions of the executive. The Public Accounts Committee conduct a *post-mortem* examination of the accounts, after they have been audited to ensure that the wishes of the legislature have been carried out. It also detects

frauds or irregularities, malpractices and misappropriations. The Estimates Committee scrutinizes demands to recommend economies in carrying out policies approved by the legislature. It usually studies thoroughly the working of a few Ministries each year and goes into considerable details to scrutinize expenditure. Both the Committees make searching enquiries and have been doing very useful work.

The British in India followed an orthodox budgetary policy. During the depression of the thirties, the Government increased taxes and drastically reduced expenditure to achieve budgetary balance. A welcome change was noticeable during the Second World War. Today, the budget is an important policy instrument and fiscal policy is a tool for achieving the social and economic objectives of the nation. The annual budget is accordingly framed in the light of the existing situation, which is reviewed in the budget speech of the Union Finance Minister. *The Economic Survey*, circulated to Parliament shortly before the Union budget, reviews the economic situation in greater detail. The State Governments also frame their budgets in the light of the prevailing circumstances and the objectives to be achieved. Uniformity in fiscal policy is achieved through the National Development Council, consisting of the Chief Ministers of all the States and presided over by the Prime Minister of India. There are also conferences of Union and State Finance Ministers. The Planning Commission and the Five Year Plans also help to bring about uniformity in policy. Finally, the increasing dependence of the States on the flow of funds from the Union Government ensures a co-ordinated fiscal policy.

CHAPTER XIV

EXTERNAL RESOURCES

I. The Role of External Resources

No economy is self-sufficient. Every country needs to import certain things from outside and it has to export in order to pay for them if it has no aid or accumulated balances abroad. Imports and exports, in their widest sense, include not only merchandise but also services, the so-called "invisible" items in internal trade, such as, transportation, banking and insurance facilities, as well as technology and know-how. Rarely does it happen that all that a country is currently importing is exactly balanced by what the country is exporting. In any given period of time, there is either a surplus on current account in a country's international payments, or a deficit. Whenever a country has a deficit, it needs external resources with which to cover it.

Most countries maintain a certain reserve, usually in the shape of gold or internationally acceptable foreign currencies, out of which temporary deficits are met and to which temporary surpluses are credited. Such reserves, by their very nature, can only help to tide over short-term fluctuations in trade, but are no answer to a situation in which a country suffers a chronic deficit year after year in its external trade. Such a country must either be able to borrow abroad, or it must take steps to curtail the excess of its imports over exports.

The need to borrow abroad or to obtain external resources can thus be said to arise when a country's exports are not sufficient to pay for its imports over the years. One must, however, go a little deeper and ask in what conditions such a situation can develop and those in which reliance on loans or capital from outside can be said to be justified. A country can well get into a chronically deficit position in its international trading by being extravagant in the sense that it consumes more than it produces, or by indulging in large unproductive expenditure on armaments. To rely on borrowing abroad in such contingencies is only to postpone the evil day. Sooner or later, the debts have to be repaid and if the economy has not gathered any strength, if it is not developing new lines of export, or industries, which will reduce its requirements of imports, then, in the end, it would be the worse off for the loans it has incurred. On the other hand, if the deficit in current trade is a reflection of increased investment in productive enterprises, investment which cannot be matched for the time being by domestic savings, then the country may well find it to its long-term advantage to borrow abroad with the confidence that as its economy develops, it can not only repay

what it has borrowed, but has secured for itself a higher level of national income in the process. Thus the richest nations today — countries like the United States — have, in the past, relied heavily on external resources, the inflow of capital from abroad, during the decades when they were developing rapidly and their own internal resources, their domestic capital formation, were inadequate.

One of the most important problems, both politically and economically, before the world today is that a large number of countries, which have after centuries of foreign domination emerged as independent nations, cannot afford anything but an intolerably low standard of living out of their own resources and need external help in order to develop. Perhaps, the most important single factor limiting development in these countries is the shortage of capital. When per capita incomes are low, only a small proportion of the national income can be saved and, therefore, a rate of investment sufficient to secure a satisfactory growth rate cannot be attained without additional resources being made available from abroad.

There is another way of looking at the same situation. The process of development requires many kinds of goods, particularly plant and machinery which are not produced in under-developed countries or, at any rate, not in any adequate quantities. As the rate of investment increases, the demand for power and transport equipment and other kinds of machinery rises so substantially that it has to be met only from a significant increase in imports. This increase is usually of such magnitude that it can be financed only if external resources are available. Indeed, even if domestic savings could be stepped up substantially to match the level of aggregate investment, the process of development may engender an imbalance in trade for the simple reason that developmental goods are not being produced in adequate quantities to meet the requirements, and new lines of exports to pay for their imports cannot be developed until the economy itself has been diversified. In other words, a developing country, which has the domestic capital for investment but not the capital goods which it needs, may also face a situation in which imports increase in the developmental phase and thus be in need of external resources. In actual fact, practically all developing countries are short both of indigenous capital and of indigenous capital goods. Their efforts to step up the level of domestic investment engender a demand not only for capital goods but also a wide variety of other things. Thus, when a factory is being set up, the employment created results in increased requirements of food, clothing and shelter on the part of labour which may in turn lead directly or indirectly to higher imports. Whichever way we look at it, there is no gainsaying the fact that when an under-developed country tries to build up its economy, it needs a great deal of additional external resources; it is only after the

process of development has reached a certain stage, when domestic savings are adequate and domestic production has been diversified, that the economy can continue to develop at a reasonable pace even without external resources.

Ways have, therefore, to be found for the transfer of resources from countries which have already attained a high standard of living and have a surplus of capital to the developing countries of the world. This transfer can take place through the initiative of private investors, who would expect a better return on their investment in an area where there is a tremendous shortage of capital than in places where it is in abundance. In actual fact, however, it is becoming increasingly clear that the scale of private investment in developing countries is not likely to meet their needs at least for quite some time to come. There are many reasons for this. The rate of growth in the developed countries themselves is pretty fast and has gathered a new momentum in recent years. Much of the private capital available for investment can, therefore, be usefully and profitably employed in the developed countries themselves without venturing farther afield into what looks like more risky terrain. Another connected problem lies in the fact that private capital must normally expect a return fairly soon. It may, however, happen that while the project in which the investment has been made is profitable, the remittance of the profits outside the country may tend to aggravate the gap in the balance of payments from which developing countries as a rule suffer, unless the production which flows from the investment directly and immediately contributes to a saving of foreign exchange. For these and various other reasons, it has come to be recognized that there is need to organize official assistance on an international or bilateral basis to provide the external resources which developing countries need.

We have now to turn from these somewhat general considerations to the specific role of external resources in the Indian economy. There has been a radical change in the basic factors affecting the situation with the conscious and deliberate effort for the planned development of the Indian economy after independence. It would, therefore, be desirable to make a review of the period before independence separately from the later and more recent developments.

India today is engaged in an effort to reach a stage of self-sustaining growth. By this is meant the achievement of a certain level of development beyond which further growth of the economy will cease to be dependent on external resources. For this, two things would seem necessary in the light of what has been explained above. First, the level of domestic savings has to be raised to sustain an adequate level of investment. It is important to realize that unless the level of investment is high enough to result in a rate of growth which will outpace the increase in population, the economy as a whole will not be moving for-

ward. Considering the state of poverty and the generally low levels of income, the prospect of domestic savings being adequate is itself dependent upon accelerating the present rate of growth with external resources. The second factor which is important is an increase in the domestic production of those things which contribute to higher rates of growth *e.g.*, plant and machinery, as well as things like fertilizers which help in increasing agricultural production.

Before considering the way in which external resources are being deployed towards the objective of what is popularly known as "economic take off", it would be useful to look at the past so as to see the problem in its historical perspective. Unfortunately, adequate and reliable data are not available. While trade statistics exist for the whole of the country — and it is unnecessary to go earlier than that — figures about invisibles are both scarce and unreliable.

The lack of consistent and authentic statistics is naturally more pronounced before the First World War. However, on the basis of such information as is available, it is clear that there was consistently some inflow of capital into the country as reflected in the estimated current account deficits in the balance of payments. One must also consider two other things: first, that although authentic figures of foreign exchange reserves are naturally not available for the period until the Reserve Bank of India began to keep custody of reserves and to publish figures regarding them, it seems likely that there was no sizeable accretion to reserves from year to year and secondly, that in fact it is common knowledge that there was considerable foreign investment in certain sectors, such as, the railways and other utilities as well as the plantations. These factors taken together with the estimated current deficits lend support to the belief that even during the period preceding the First World War, there must have been some steady inflow of private foreign capital into the country. While the actual magnitudes of such inflow may be debatable, the broad trend is probably unmistakable.

II. External Resources Before Independence

The need for and the role of external resources in India's economy prior to independence were different from what they are now. Since planning began, the need for external resources has been steadily rising for reasons to be discussed later. In the pre-independence days, India almost always ran a surplus in her overall merchandise trade account (excluding treasure) which had averaged a little under Rs. 100 crores per year in the ten years preceding the Great Depression, but which fell to an annual average of about Rs. 70 crores during 1930-33 * and further

*Actually, in the worst Depression year 1932-33, the country's trade surplus had fallen to a distressingly low level of under Rs. 6 crores.

to Rs. 30 crores during the next three years 1933-36. After that there was a gradual recovery. In any event, there was no trade deficit to be financed by external resources.

Brief Review of India's Pre-War Balance of Payments: Statistics of India's balance of payments are not available prior to the First World War. Even when the required statistics are collected, estimated and put together, the result seriously falls short of the degree of sophistication which goes into a modern presentation of the balance of payments on the pattern laid down by the International Monetary Fund.

1901-1914: An effort to estimate the balance of payments of the country in the years preceding the First World War was made by Y. S. Pandit.* According to Pandit, while India generally ran a surplus in her merchandise trade account, in the current account of her overall balance of payments, there was, however, an average deficit of about Rs. 13 crores per year.

TABLE I

India's Balance of Payments 1901-14**

(Rs. lakhs)

Year	*Merchandise Trade Net Receipts*	*Invisibles Net Payments*	*Total Current Account (Net)*
1901—02	3,486	4,823	—1,337
1902—03	3,575	4,152	—577
1903—04	4,534	4,713	—179
1904—05	3,854	5,044	—1,190
1905—06	3,283	5,780	—2,497
1906—07	2,762	3,791	—1,029
1907—08	1,176	3,844	—2,668
1908—09	1,732	3,160	—1,428
1909—10	4,220	6,685	—2,465
1910—11	5,141	5,869	—728
1911—12	5,067	5,632	—565
1912—13	4,144	4,679	—535
1913—14	3,596	5,427	—1,831

The structure of India's balance of payments until the outbreak of the First World War is quite clear from the above; there was invariably a sizeable surplus on trade account, which was more than offset by net payments on account of invisible transactions, including service transactions as well as Home Charges.*** The important point which emerges

*Y. S. Pandit — India's Balance of Indebtedness, 1898-1913, George Allen & Unwin Ltd., London, 1937.

***Op. Cit.*, P. 103.

***A minor portion of 'Home Charges' consisted of payments against purchases of Government stores in Great Britain, which should strictly form part of merchandise imports and not of the invisible account.

from the above figures, however, is that every year there was a current account deficit of about Rs. 13 croreswhich was financed by an equal inflow of foreign capital. Virtually all of this inflow of private capital was from Britain and was directed to the Railways and other utilities as well as some other sectors such as plantations, etc.

1914 to 1939: After 1913-14, there was a wide gap in our series of balance of paymentx upto 1921-22 and the picture is blurred, except for statistics of the trade balance. For the war years, the trade balance was as follows:

TABLE II

India's Balance of Trade During First World War*

(Rs. crores)

1914-15	1915-16	1916-17	1917-18	1918-19
+3.8	+6.2	+5.5	+5.4	+4.4

It should, however, be added that the war generated forces which did not exist before and the country's external accounts were substantially transformed. Briefly, what happened was that foreign demand for India's exports, especially of jute bags for trench warfare, and for her other manufactures as well increased sharply while demand for imports remained fairly stagnant until after 1917. The increasing trade surplus meant that foreign demand for Indian rupees exceeded supply and exchange equilibrium had, therefore, to be maintained only by the sale of Council Bills on London, on a large scale, by the Secretary of State for India. This together with a continuous rise in the price of silver (of which rupee coins were made) made it difficult to peg the rupee-sterling exchange rate at 1s. 4d. which was ruling when the war began. Therefore, the exchange rate was raised successively, in step with the rise in the price of silver to 1s. 4½d. in January 1917, 1s. 5d., in August 1917, 1s. 6d., in April 1918, 1s. 7d., in May 1919, 1s. 10d., in August 1919, 2s. 0d., in September 1919, 2s. 2d., in November 1919, and 2s. 4d., in December 919. By the early months of 1920, the rate reached a peak of 2s. 11d.

For the period 1919-1921, again, it is extremely difficult to strike a balance of payments for the country. Only a partial picture can be gleaned even of the trade accounts, which themselves are, by no means, the most important element in a country's balance of payments especially in disturbed periods, such as those following a war. The private merchandise balance of trade is estimated to have amounted to a surplus of

*G. B. Jathar and S. G. Beri — *Indian Economics*, Vol. II, Oxford University Press, 1952, p. 164.

Rs. 126 crores in 1919-20 and a deficit of Rs. 80 crores in the following year. However, as stated before, not much should be read in this as this does not convey any idea of the net balance on current account.

For the years beginning 1921-22, a consistent series on estimates of India's balance of payments upto 1933-39 has been compiled by A. K. Banerji. In addition, the Government of India also started compiling blanc e of payments statistics from 1923-24 onwards for the Legue of Nations. How ever, for a number of reasons, including better coverage and superior methodology the series compiled by Banerji for the period 1921-39 is to be preferred. This is reproduced below:

TABLE III

Estimates of India's Balance of Payments*

(Rs. crores)

Year	*Trade Balance*	*Invisibles (net)*	*Current Account (net)*
1921—22	—9.6	—77.9	—87.5
1922—23	46.3	—109.8	—63.5
1923—24	111.3	—119.7	—8.4
1924—25	85.6	—126.0	—40.4
1925—26	113.2	—121.1	12.1
1926—27	68.8	—59.0	9.8
1927—28	82.4	—111.5	—29.1
1928—29	89.9	—109.8	—19.9
1929—30	88.2	—84.7	3.5
1930—31	61.3	—84.3	—23.0
1931—32	109.3	—84.3	25.0
1932—33	85.1	—89.3	—4.2
1933—34	108.6	—107.9	0.7
1934—35	90.8	—95.7	—4.9
1935—36	81.7	—61.8	19.9
1936—37	111.4	—91.2	20.2
1937—38	75.2	—89.1	—13.9
1938—39	73.8	—86.2	—12.4

The most striking feature of the above Table is the extent to which the invisibles account dominated the current account of the balance of payments. The fact that the country always owed net payments to the rest of the world on this account will be commented upon and the underlying factors explained in the following paragraphs. It may be noted, however, that the net payments on account of all invisible items taken

*Arun Kumar Banerji — *India's Balance of Payments*, Asia Publishing House, 1961, p. 147.

together averaged about Rs. 95 crores per year and were entirely responsible for turning the average annual trade surplus of about Rs. 83 crores into a small average annual current account deficit of about Rs. 12 crores.

External resources were required for meeting, among other things, certain invisible payments commonly called the 'Home Charges'. These consisted of the gross sterling expenditure incurred in the United Kingdom by the Government of India mainly on account of first, recruitment of British personnel for civil and military employment in India and their furlough pay and pensions; secondly, payment of the Government of India's share of the expenditure incurred by the British Government in wars in adjoining territories such as Afghanistan and Burma; thirdly, purchase of stores; and lastly, other miscellaneous payments owed by the Government of India to the British Government. All these payments added up to a sizeable amount which went on growing steadily upto 1922-23 and then stabilized itself around a level of £30 millions per year with minor variations around that level. Of this, the amount spent on purchases of stores should properly be regarded as payment for imports on Government account and only the balance should be considered as invisible payments. However, the bulk of the gross sterling expenditure was on account of the other items. The impact of the 'Home Charges' on the country's balance of payments became acute when during the Depression years, the country's trade surplus dwindled rapidly and other means had to be found for meeting the 'Home Charges'. A series of inter-related factors including a fall in the prices of primary products as well as overvaluation of the rupee at the exchange rate of 2s : Re. 1, combined to produce gold exports as the means of financing the 'Home Charges'. Thus, from a net importer of treasure (mainly gold) of about Rs. 31 crores per year during the quinquennium 1926-31, the country turned into a net exporter of gold worth Rs. 53 crores per year in the next quinquennium 1931-36.

Apart from 'Home Charges'. India had another recurring and fixed overseas liability to meet each year in the shape of the servicing charges against the sterling debt held by the Government of India. It has been estimated that the foreign-held porton of the Government of India's sterling debt was of the value of over Rs. 370 crores at the end of 1921 and had increased to about Rs. 450 crores* by 1938. The interest charges payable against these sums amounted to an annual average of Rs. 18 crores* during the period 1921-22 to 1938-39.

In addition to the sterling debt of the Government of India, there were sizeable foreign private investments in India in the public utilities, especially, railways, plantations, mines, industry, commerce, banking,

*Ibid, Table XXV, p. 88.

etc. Several estimates have been made by different persons of the value of total foreign investments in India at different points of time some of which are briefly summarized below:

TABLE IV

Estimates of Foreign Investments in India*

	Estimated by	*Value £ m.*	*Year to which estimate relates*	*Coverage*
1.	Beaumont of the London Stock Exchange	500	1909	British investments in India.
2.	J. M. Keynes	360	1909	British investments in India.
3.	Sir George Paish	365	1910	British investments in India and Ceylon excluding (a) re-investments, (b) investments in shipping, telegraph and insurance companies, and (c) all investments, the income from which, either wholly or in part was not remitted to Britain or evaded British Income Tax.
4.	H. F. Howard	450	1910	British investments in India based on both the 'resident' and 'nationality' criteria and excluding capital employed by British shipping companies in the overseas and coastal trade of India.
5.	Arun Kumar Banerji	531**	1921	Total foreign investment in India.
6.	Dr. V. K. R. V. Rao	575	1926-27	Total foreign investments in India.
7.	The Economist	354	1928-29	Total British investments in India and commercial capital invested in Ceylon excluding (a) investments in securities not registered with British stock exchange, (b) investments in shipping, insurance and banking companies and merchant houses operating partly in Britain and partly in India and Ceylon and (c) direct investments in farms, real estate and other property.

*Arun Kumar Banerji, *op. cit.* pp. 150-186. See also Reserve Bank of India *Census of India's Foreign Liabilities and Assets*, Bombay, 1950, Appendix I, pp. 151-159.

**Original figures in rupees converted into pounds sterling at the exchange rate of Re. 1: 1s. 6d. To the various estimates listed here may be added that by H. Feis of Longterm publicly issued British capital investments in India and Ceylon (Sri Lanka) (excluding that in shipping and all private investment without the intercession of the public 'money' market) at £ 379 m. at the end of 1913. Vide, H. Feis, *Europe: the World's Banker*, 1870-1914, Yale University Press, 1930, p. 23.

	Estimated by	Value £ m.	Year to which estimate relates	Coverage
8.	Finlay Shirras	526	1929	Total foreign investments in India excluding (a) investments held by resident foreigners, (b) debenture capital of foreign companies, (c) investments in India rupee companies, and (d) investments in partnerships, firms, landed properties, etc.
9.	Lord Kindersley	458 438	1930 1935	British investments in India and Ceylon excluding; (a) securities and bonds not registered with the British stock exchanges, and (b) investments in partnerships, firms and other proprietory holdings of Britishers resident in India.
10.	Arun Kumar Banerji	664**	1938	Total foreign investments in India.
11.	B. R. Shenoy	830	1939	Total foreign investments in India.

It is certain from the available evidence* that the value of the total foreign indebtedness of the country must have been around £ 500 m. (or Rs. 666 crores) in the thirties and over £ 650 m. (or Rs. 867 crores) on the eve of the Second World War. The average servicing charges against these foreign investments (including the sterling debt of the Government of India) were about Rs. 50 crores per year during the seventeen year period 1921-22 to 1938-39**.

While any precise estimate of the amount of the Government of India's debt held abroad is difficult to hazard, there is no doubt that the amount was sizeable. At the end of 1939-40, for example, out of the total Central Government debt of Rs. 1,204 crores, no less than Rs. 439 crores consisted of sterling loans, while a considerable portion of the rupee debt of Rs. 450 crores must also have been held abroad.*** However, the greater part of the sterling debt of the Government of India was repatriated, over the years 1937-48 and the value of the sterling debt thus repatriated was £ 327 m. (or Rs. 437 crores).****

*For an excellent discussion of these various estimates and their relative merits and drawbacks, see Banerji, *op. cit.*, pp. 150-186 and *Census of India's Foreign Liabilities and Assets*, *op. cit.*, pp. 14-16.

**Arun Kumar Banerji, *op. cit.*, Table XXV, p. 88.

***The balance of Rs. 315 crores consisted of small savings, Treasury Bills, Ways and Means, Advances and other interest-bearing obligations. See G. B. Jathar and S. G. Beri, *Indian Economics*, Vol. II, p. 404.

*****Ibid*, p. 407.

Private Foreign Investment Before Independence: The wide divergence between the different estimates of total foreign investment in the country prior to independence arises mainly on account of the divergence in the estimates of the portion relating to private foreign investment in the country, as figures of external public debt are less controversial.* According to Banerji's estimates, of the total foreign investments of £ 531 m. and £ 664 m. at the end of 1921 and 1938 respectively, about £ 246 m. and £ 324 m. respectively, were in the private secor including railways and other utilities as well.** This worked out to roughly 46-47 per cent of the total.

During the seventeen year period 1921-22 to 1938-39, when according to Banerji, aggregate net foreign indebtedness of the country increased by about £ 133 m., the gross inflow of capital into the country was much larger, since there always was a steady stream of repatriation as well. On an average, the total gross inflow of foreign capital into the country was placed at around Rs. 20 crores per year, while total repayments averaged about Rs. 10 crores per year. Net new foreign investment in the country was of the order of Rs. 10 crores per year.*** It may be noted here that these annual averages obscure the wide fluctuations in capital flows which occurred during this period. Thus, in the gross inflow of capital (chiefly the borrowings on the London Stock Exchange, valued at issue price) at least four different phases can be discerned: first, the period 1921-24, when the annual average of gross inflow was around Rs. 48 crores; next, the period 1924-30, when it fell to Rs. 11 crores; secondly, the period 1930-34, when it again rose to Rs. 27 crores; and finally, the period 1934-39, when the annual average of gross inflow shrank to Rs. 7 crores only.

It should, however, be added, that the greater part of the inflow during the years 1927-32 was by Government. Investment in other avenues had, more or less, completely petered out during these years. Foreign investment in Indian railways had tapered off before this period, and there was practically no new foreign investment in this segment after 1925-26. Investment in such semi-governmental bodies as Port Trusts, Corporations, Improvement Trusts, which had averaged £ 1.8 m. a year during 1921-26, virtually ceased after that. Public utilities other than railways, such as electricity, tramways, gas and telephone companies were fairly steady borrowers on the London Stock Exchange and were interrupted only during the years 1927-32. Borrowing by the plantations, which had averaged £ 0.23 m. annually in the earlier years,

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*The chief point of dispute and divergence here is the estimation of the portion of the Government's rupee debt which was held by foreigners.

***op. cit.*, pp. 175 and 183

***Banerji, *op. cit.*, p. 195

tapered off almost completely by 1931-32, presumably on account of the steep fall in the prices of plantation crops during the Depression. Foreign investment in other industries was fitful and desultory and, in any event, was not on any significant scale.

While annual repatriation of foreign capital from India, including repayments of loans, did not show any serious fluctuations, there was a sharp increase in the rate from 1931-32 onwards, which was mostly due to discharge of the public debt. The latter averaged about Rs. 2.7 crores per year during 1921-31; during the next six years, the annual average increased to a little over Rs. 18 crores; after that it declined sharply again. Total repayments, which were obviously dominated by repayments of public debt, naturally followed a parallel trend. Their annual average increased from Rs. 4.3 crores during 1921-31 to about Rs. 18 crores during the next six years, before falling sharply again in 1937-39.

World War II and the Sterling Balances: No reliable estimates of the country's balance of payments during the years of the Second World War are available. However, it is not difficult to form certain qualitative judgements about the position during the years. With the rapid extension of the theatre of war, first, on the continent of Europe and then in South-East Asia, India's trade with some of her important trading partners abruptly ended in quick succession. There was a rise in shipping freight rates as well as in the freight element in prices on account of the need to revive the use of the Cape route (after Italy entered the war); insurance rates increased on account of the increased risk of loss on the high seas; in order to conserve foreign exchange for war purposes almost all countries introduced exchange and other controls on their foreign trade. All these factors tended to reduce the size of India's foreign trade.

These adverse factors were, however, more than counter-balanced by several favourable factors, which also arose directly out of the war. These included the great upsurge in the British demand for war materials as well as peace time goods of every description; the stimulation of demand for Indian goods from the markets of the Middle and Near East, where a great void had been created by the withdrawal of British, American, German and Japanese supplies from them; the emergence of India as the chief arsenal and supply centre for the Allies in the South-East Asian theatre of war and a pronounced tendency in all countries to substitute nearer supply centres for distant ones and to rely more on land trade than on sea-borne trade, owing to Germany's intense U-boat activity.

An indirect measure of what happened to the country's balance of payments in consequence of the several developments briefly mentioned here can be obtained from the phenomenal growth of India's sterling

balances. This would indicate the rough magnitude of the cumulative current account surpluses acquired by the country during the war years. In September 1939, when the war broke out, these balances amounted to £ 52 m. On August 14, 1947, the eve of independence, they had swollen to £ 1,160 m., broadly reflecting the excess of India's supplies to the United Kingdom and Allies over its payments to them for the imports of goods and services. Two agreements were concluded between India and the United Kingdom concerning the disposal of this colossal amount, of which the first one was an Interim Agreement which chiefly prescribed the mode of releases from this blocked amount for current purposes and also the amount of releases for the period upto the end of December 1947.

The final agreement, which was signed on July 9, 1948, included provisions on at least five important matters: first, it was agreed that India should pay £ 100 m. in full and final settlement of all the stores and installations taken over from the United Kingdom; secondly, India agreed to pay a sum of £ 168. m. to the U.K. for the purchase of tapering annuities to pay the sterling pensions of British personnel who had retired after Government service in India; thirdly, after striking the final account of undivided India for 1946-47, it was found that the U.K. still owed some £ 49 m. under the scheme of sharing defence expenditure between the two countries; after making certain other adjustments, the net amount payable by the U.K. was finally assessed at £ 55 m.; next, the release for current purposes (to Account No. 1) from the blocked balances (Account No. 2) was to be £ 80 m. for the period July 1, 1948 to June 30, 1951, over and above the unspent balance of £ 80 m. from previous releases, which was free to be carried over; and finally, it was agreed to release £ 15 m. as convertible currency for the first year (1948) and the position in this regard was subject to review in later years. After making all the adjustments, India's net share of the sterling balances came to £ 800 m.

The accumulation of sterling balances of the value of £800 m. (net) was an event of some considerable significance to the country's economy. For one thing, it altered its net international position from debtor to creditor. According to the Census of India's Foreign Liabilities and Assets carried out by the Reserve Bank of India as of mid 1948, India was shown to be a net creditor by Rs. 1,504.5 crores*. Several reservations and qualifications need to be taken into account in order to grasp the true significance of the international net creditor position revealed by the Reserve Bank of India's study. However, these will be discussed elsewhere in this chapter. For the present, it is sufficient to point out

*Reserve Bank of India: *Survey of India's Foreign liabilities and Assets*, Bombay, 1955

the change in the country's international creditor-debtor position. It should also be emphasized that while the subtle process of external capital formation was, no doubt, at the cost of the immense hardships and privations, suffered by the people of India during the war years in the form of rising prices and falling civilian consumption standrds, it had its own advantages too. Perhaps, the greater advantage was the fact that but for the availability of such a large cushion of foreign exchange reserves, it would have been quite difficult to think in terms of Five Year Plans involving large scale investment outlays.

To sum up the position on the eve of independence, from the external resources angle, the Indian economy had the following important characteristics:—

(i) Unlike the belligerent countries, there was no devastation and destruction of the Indian economy during the Second World War; on the contrary, a certain degree of industrialization had been achieved both under the stimulus of war demand and under the protection of exchange and import controls.

(ii) An efficient machinery for the regulation of foreign trade had been built up under the Defence of India Rules in the form of exchange controls and quantitative controls on imports and exports. Although set up for serving the ends of the war effort, it made a valuable addition to the country's somewhat limited repertoire of instruments of economic policy.

(iii) Thanks to the conjuncture of developments, such as the withdrawal of the principal industrialized countries from markets adjacent to India, increased preference for land trade rather than sea-borne trade, etc., India had developed almost by force of circumstances, rather than by conscious planning, a fairly flourishing export trade in the Middle, Near and Far East and in South-East Asia.

(iv) Again, by force of circumstances, she had achieved external capital formation on an unprecedented scale and had laid by £ 800 m. of sterling balances, which would be of crucial importance to her in subsequent years.

(v) As against these favourable factors, there were several developments which portended acute economic strain. Not the least among these was the considerable volume of pent up demand for food and consumer goods of all kinds, which had been built up. Inflation had been on the rampage during the war and early post-war years and had naturally created a serious imbalance between supply and demand. This was particularly true of civilian supplies. While the growth of money incomes had proceeded steadily over the war years, the commandeering of a large portion of the existing supplies for the war effort as well as

the war-time neglect of agriculture coupled with a succession of crop failures which had created a situation of acute food scarcity, had all contributed to a continuous spiralling upwards of the prices of all consumer goods and particularly, of food articles. Consequently, there was considerable pent up demand. The policy implication of this situation was clear. A large part of the country's external resources was likely to be taken up by imports of, at least, the essential consumer articles, if either a price explosion or a drastic deflation were to be averted.

(vi) Another factor which had to be reckoned with in assessing the likely claims against the apparently large sum of £800 m. of external resources was the heavy depreciation of the capital stock of the country which had occurred during the war and early post-war years. This depreciation was the result of abnormally intensive use of the country's capital equipment on account of the war effort; the absence of indigenous production of most kinds of capital equipment; and the inability of the main producing countries to export. Factories, mills, workshops, etc., in the country as well as the transport system, consisting of both rail tracks and rolling stock had carried on without practically any replacement for years. All these had to be replaced, even if gradually.

(vii) Superimposed on the strains inherent in these developments was the dislocation caused by the partition of the country into the Indian Union and Pakistan. There was considerable industrial dislocation, especially, in the affected border areas. Besides, large cross currents of migrating populations also introduced a new element of unsettlement, which caused a fall in production.

It would, therefore, be seen that it would have been fallacious to regard the apparently large sum of £800 m. as an unencumbered legacy available exclusively for meeting the needs of development in the early years of independence. Taking account of the requirements of external finance for development, the sum was, indeed, not too large. At the same time, it was sufficient to make a beginning in planned development of the country, which was the major economic task before the country.

III. Independence and Planned Development

The role of external resources in the Indian economy has been changing rapidly in the years after independence. The evolution of Indian policies, on the one hand, and the part played in the Indian economy by external resources, on the other, can be considered in a number of separate phases. The first phase would be the period after independence and prior to the launching of the First Plan, characterized by an attempt to tackle immediate problems while marshalling data and formulating policies for future development. The second phase can be said to consist of the first decade of planned development ending in March 1961.

And then we come to the phase we are passing through today.

The First Phase (August 1947 - March 1951): On the eve of independence, India's sterling balances, as we have seen, amounted to a total of £ 1,160 million which, as a result of various adjustments in pursuance of the Indo-U.K. Financial Agreement of 1947, came down to a net amount of about £ 800 million (Rs. 1,064 crores), as India's share. There were heavy drafts on these balances after independence to finance sizeable deficits in India's external trade which began to appear in the wake of partition.

Many of the commodities which had occupied places of importance in India's export trade before partition were the produce of areas which became parts of Pakistan. As a result of partition, not only did India cease to be a major exporter of these commodities, but, in certain instances, she became a large importer of them. Thus, for raw jute, India was a net exporter of Rs. 19 crores in 1946-47; in 1948-49, she was a net importer of Rs. 46 crores. In foodgrains, the deterioration between 1946-47 and 1948-49 was over a hundred crores of rupees, though not all of it could be attributed to the partition of the country, and in cotton around Rs. 47 crores. Ordinarily much, if not all, of this loss should have been compensated by the fact that while in the past supplies from the rest of India to areas later included in Pakistan formed a part of the internal trade of the undivided country, after independence, they should have gone to augment India's export earnings. But the flow of trade between India and Pakistan was interrupted by the application of import and export restrictions as well as customs duties. In addition, political bitterness then prevailing in the wake of partition further impeded the flow of trade.

Apart from this particular factor, there were others creating a demand for imports and a decline in exports. The population had been increasing. There had been throughout the war years a considerable increase in money supply. And there was a pent up demand for imports which had to be satisfied, not merely for consumer goods but also for the replacement of plant and machinery worn out during the war years.

In order to deal with the immediate problems arising out of the adverse turn in the country's foreign trade, the import policy was tightened up and in two concrete measures, explicit recognition was given, for the first time, to the importance of exports to the national economy; those measures were the passing of a Resolution on Industrial Policy on April 6, 1948 and the setting up in 1949 of an Export Promotion Committee. While the former emphasized the production of commodities for export for earning foreign exchange, the latter was assigned the task of recommending specific measures to augment India's export earnings.

In September 1949, sterling was devalued and the Indian rupee with it.

Shortly thereafter, hostilities broke out in Korea. The combined effect of these was to lead to an upsurge in the demand for many Indian products, particularly jute goods which were sold at unprecedented prices. The adverse trade gap was wiped out and the sterling balances which had fallen to the low level of Rs. 771 crores on September 16, 1949 went up to Rs. 884 crores by March 1951.

Even while attention was focussed on these short-term fluctuations in current trading, some forward thinking on the subject of external resources was taking place. To provide a foundation for it, the Reserve Bank of India undertook a census of India's foreign liabilities and assets as on June 30, 1948. At the same time, thought was given by Government to the role which private foreign capital should play in independent India.

Unlike the previous attempts in the field, which focussed on estimating foreign investments in India, the census carried out by the Reserve Bank of India encompassed the whole gamut of the country's assets as well as liabilities. Among other things, it revealed the transformation of the economy from a net international debtor to a net international creditor. According to the census, taking both the official and non-official sectors together, India had a net creditor position of Rs. 1,504.5 crores at the end of June 1948. This comprised of a net creditor position of Rs. 1,761.5 crores in the official sector and a net debtor position of Rs. 257 crores in the non-official sector. The official sector's total gross assets of Rs. 1,939.6 crores comprised long-term assets of Rs. 730.8 crores and short-term assets of Rs. 1,208.8 crores, which consisted almost entirely of the sterling balances. As against this, the total gross liabilities of the official sector were estimated at Rs. 178.1 crores resulting in a net creditor position of Rs. 1,761.5 crores.

The non-official sector's net debtor position of Rs. 257 crores emerged from gross assets of Rs. 69.1 crores more than offset by gross liabilities of Rs. 326.1 crores. Gross total assets were composed of Rs. 11.5 crores in short-term and Rs. 57.6 crores in long-term assets. Gross total liabilities consisted of Rs. 38.4 crores in short-term liabilities and Rs. 287.7 crores in long-term liabilities.

Out of total long-term foreign liabilities of Rs. 287.7 crores of the non-official sector, foreign non-banking business investments accounted for Rs. 264.6 crores, of which about 80 per cent was in the form of direct investment, the balance of 20 per cent being portfolio capital. On a sector-wise basis, out of the total, Rs. 70.7 crores was invested in manufacturing, Rs. 52.2 crores in plantations, Rs. 43 crores in trading activities, Rs. 31.5 crores in construction, utilities and transport, Rs. 22.3 crores in petroleum, Rs. 15.7 crores in financial services, Rs. 11.5 crores in mining and Rs. 17.7 crores in other miscellaneous activities.

In the period immediately following independence, there were many

uncertainties and doubts about the attitude which independent India would adopt towards private foreign capital. Prior to independence, Indian public opinion was far from favourable towards the inflow of private foreign capital. The Fiscal Commission of 1923, for example, drew attention to the distrust of foreign capital while recommending its guarded use for industrialization. A minority minute of dissent had urged the adoption of certain safeguards in regard to foreign capital, particularly that foreign capital invested in manufacture should be in a company incorporated and registered in India, in rupee capital with a reasonable number of Indians on the Board of Directors and offering reasonable facilities for the training of Indians. The External Capital Committee (1925) of the Government of India had emphasized that when concessions to foreign capital were being granted (e.g. in the shape of protection), no special discrimination in favour of foreign capital should be permitted. The National Planning Committee (1936) with Jawaharlal Nehru as Chairman and later the Advisory Planning Board (1946) had both generally opposed the entry of foreign capital, except under the most rigorous control.

The change in the attitude towards foreign capital which followed independence is specially interesting. This was based on a recognition of certain basic facts. First, it was evident that India would need a good deal of external resources for her future economic development and as things then stood, when governmental aid and credits from developed to developing countries were not anywhere on the horizon, private foreign capital was one of the most important sources of such external resources. Secondly, with independence and the end of political domination, there had been a radical change in the equations. In independent India, foreign capital could no longer dominate the Indian economy and it had to function within the frame-work of national policies. In the altered circumstances the question was not so much of ensuring that there was no discrimination in favour of foreign capital, as recommended by the External Capital Committee of 1925, as of assuring foreign capital that there would be no discrimination against it.

The first articulate expression of free India's attitude towards foreign capital was embodied in the Industrial Policy Resolution of 1948 which emphasized, at once, the need for carefully regulating as well as inviting private foreign capital. It laid special stress, *inter alia*, on the need to ensure that in all cases of foreign collaboration, the majority interest was always Indian. This was followed by the Fiscal Commission of 1949-50 which recommended that foreign investment may be permitted first, in public sector projects needing imported capital goods and secondly, in new private industries where no indigenous capital or technical know-how was likely to be available.

The corner-stone of independent India's attitude towards private foreign capital was, however, laid by Prime Minister Jawaharlal Nehru in his historic statement in the Constituent Assembly on April 6, 1949, in the following words:

"In the first place, Government would expect all undertakings, Indian or foreign, to conform to the general requirements of their industrial policy. Government would also so frame their policy as to enable further foreign capital to be invested in India on terms and conditions that are mutually advantageous.

"Secondly, we do not foresee any difficulty in continuing the existing facilities for remittance of profits, and Government have no intention to place any restriction on withdrawal of foreign capital investments, but remittance facilities would naturally depend on foreign exchange considerations.

"Thirdly, if and when foreign enterprises are compulsorily acquired, compensation will be paid on a fair and equitable basis as already announced in Government's statement of policy.

"As a rule, the major interest in ownership and effective control of an undertaking should be in Indian hands. Government will not object to foreign capital having control of a concern for a limited period, if it is found to be in the national interest."

The First Two Plans: India's First Five Year Plan was launched on April 1, 1951. As pointed out earlier, the outbreak of hostilities in Korea had given a fillip to India's exports in 1950-51 and there had been a steady increase in India's sterling balances. The reserves' position on April 1, 1951 was fairly comfortable, the actual figure being Rs. 1,029 crores. Even so, the Plan recognized the need for foreign aid and assigned an important place to the inflow of foreign capital. The Plan calculations about foreign exchange suggested a balance of payments deficit of as high as Rs. 180 to Rs. 200 crores per annum, and a deficit of this magnitude was considered necessary to fulfil the investment targets on schedule. It was intended that a little more than half of the overall deficit should be met by drawing upon the sterling balances and the remainder, something like Rs. 230 crores, would be covered by foreign aid and private foreign investment. In actual fact, the draft on reserves during the First Plan was no more than Rs. 127 crores. This was due to several factors. It had been estimated that the current account deficit (excluding official donations) would be in the region of Rs. 700 crores. Actually, the gap was only a little above Rs. 150 crores. Official donations made a modest contribution of Rs. 109 crores towards closing this gap. Thus, the current account deficit, after allowing for receipts on official donations, had only a relatively small impact on the reserves position. If, in the event, reserves declined by Rs. 127 crores, in spite of

receipts of official loans of Rs. 106 crores (including the U.S. Wheat Loan), it was due to substantial outflows on account of private capital as well as unidentified transactions, in addition to a repayment of Rs. 42 crores to the International Monetary Fund.

A series of events were responsible for this outcome. Not the least of these was the fact that due to a succession of good monsoons and, therefore, of good crops, food imports were much less than was contemplated in the Plan. Again, the Korean War boom had given an extraordinary fillip to export earnings and the record earnings of Rs. 730 odd crores in the very first year of the Plan could not fail to influence the over-all payments position during the Plan period. Another important contributory factor was the shortfall in actual investment outlay as compared to planned outlay. As against a total Plan provision (maximum) for investment of Rs. 3,600 crores, the actual investment turned out to be Rs. 3,360 crores or about 93 per cent of the target. The combined result of all these developments was that the total aid utilized in the First Plan was just over Rs. 200 crores, which, excluding the U.S. Wheat Loan because of its special character, accounted for only 3.3 per cent of the total investments during the Plan.

In a sense, this turn of events in the First Plan was responsible for a degree of complacency when consideration was being given to the external resources required for the Second Plan. The favourable trend in agricultural production during the First Plan engendered the belief that it would not be necessary to have large imports in the Second Plan. It was also tacitly assumed that the ratio of the current account deficit to total planned investment (both in the public and the private sectors) would be of the same low order — 18 - 19 per cent — as in the First Plan despite the shift of accent from agriculture to industry. To accelerate the pace of industrial development, import licences were freely given for industrial plant and machinery of all kinds. In retrospect, it does not seem surprising that half-way through the Second Plan period, the country was confronted with serious difficulties on account of a shortage of external resources.

Briefly, the foreign exchange calculus of the Second Plan was something like this. Total investment envisaged in the Plan was Rs. 6,200 crores (comprising Rs. 3,800 crores in the public and Rs. 2,400 crores in the private sector). As against this, a current account deficit of Rs. 1,100 crores was visualized. Finance for this had to be found from external resources — including the use of Rs. 200 crores of foreign exchange, estimated receipts of private foreign capital (net) of Rs. 100 crores* and foreign aid to the tune of Rs. 800 crores. This was, by no means a

*Including an amount of about Rs. 22 crores which was the undisbursed balance of the World Bank's loans (authorized in the First Plan) for the private sector.

tall order; especially, the latter amount was expected to come from such diverse sources as bilateral as well as multilateral dispensers of aid, bankers' and suppliers' credits and floatation of public issues in foreign money markets. Broadly speaking, the estimated foreign aid receipts of Rs. 800 crores represented the aid requirements of the public sector and the remaining Rs. 100 crores those of the private sector. Particular mention may be made here of the credit of Rs. 63 crores arranged from the U.S.S.R. Government for the Bhilai Steel Plant and Rs. 33 crores jointly from the British Government and certain British bankers for the Durgapur Steel Plant. However, it is significant that it was not deemed necessary to arrange such credit for the third steel plant in the public sector at Rourkela.

Foreign Exchange Crisis of 1957-58: The actual turn of events in the Second Plan ran quite contrary to expectations. From Rs. 902 crores at the beginning of the Plan, foreign exchange reserves experienced a landslide decline of Rs. 587 crores in just 2½ years to Rs. 335 crores by the end of September 1958. In addition, the country had to borrow Rs. 89 crores (net) from the International Monetary Fund during the first half of the Second Plan. Comparatively, the role played by foreign aid in financing the current account deficit (excluding official donations) of Rs. 1,109 crores was of slightly lesser significance as the total utilization of aid amounted to about Rs. 519 crores, including Rs. 188 crores of imports financed under P.L. 480*. It may also be added that on account of private long-term capital there was actually a net outflow of Rs. 38 crores during this period.

The principal causes of the dramatic events which led to the serious crisis have already been indicated. In terms of actual magnitudes, it is of the greatest significance that there was a sharp rise in imports. While the annual average level of exports showed a marginal fall of Rs. 9 crores from Rs. 622 crores in the First Plan period to Rs. 613 crores in the Second, the average level of imports soared from Rs. 730 crores per year in the First Plan to Rs. 1,081 crores in the Second. The trade gap, therefore, widened from an annual average of Rs. 108 crores to Rs. 468 crores during the same period. Net earnings from the services and other invisible items, such as private donations (but excluding official donations), also showed a small decline of Rs. 3 crores from Rs. 78 crores per year in the First Plan to Rs. 75 crores in the Second. However, the

*In 1956 India signed the first P. L. 480 agreement with the U.S.A. for the supply of surplus agricultural commodities. The original Public Law 480 legislation of the U.S.A. enacted in 1954, provides for sales by the U.S.A., of agricultural commodities to developing nations on concessional terms. Agricultural commodities supplied to India under this programme have played an important role in fighting food scarcity and shortage of certain other commodities like raw cotton and oil-seeds.

excess of the country's current payments over current receipts widened from Rs. 31 crores per year in the First Plan to Rs. 378 crores per year in the Second. It is worth noting, however, in this context that the rapid increase in imports was solely the result of the sudden acceleration in the rate of investment.

Thus, already by the middle of the Plan, the loss of reserves had amounted to the astonishingly high figure of Rs. 567 crores as compared to the expected loss of Rs. 200 crores in the entire five year period. On September 30, 1958 only about Rs. 335 crores of foreign exchange was left in hand. In addition, as pointed out above, the country had run up a net outstanding liability of Rs. 95 crores to the International Monetary Fund. Over and above these difficulties, large payments which were due in the remaining half of the Plan had also cast their dark shadow.

A series of concerted measures had to be taken at once to salvage the economy from the difficult situation. The Plan was cut to the core. Import policy was drastically tightened. Imports of all consumer goods, except the most essential ones, such as, foodgrains were banned, while a moratorium was placed forthwith on imports of capital goods, unless there was specific foreign exchange cover for them, in the form of either official or private foreign credit or investment. Severe restrictions were also placed on all other foreign exchange payments, such as, those for foreign travel, private outward donations, etc. Some action was also initiated in the direction of export promotion. By far the most important measure, at any rate, from the point of view of obtaining direct and immediate results was, however, the determined effort made by the country to seek external assistance and the prompt and generous response to it from friendly foreign countries and international institutions. While India adopted a policy of approaching different countries/institutions individually, the World Bank which had already given ample proof of its friendly and active interest in the economic development of the country by investing large amounts in different projects in the country, took a significant step forward by sponsoring a meeting of India's principal suppliers of capital goods to consider India's immediate aid requirements jointly and to try to meet them in a co-ordinated manner. This meeting which was attended by the U.S.A., the U.K., West Germany, Canada and Japan, besides the World Bank who convened it, was the first meeting of what is generally referred to as the World Bank Consortium on India. At the meeting, general assurances were given of finance to cover the so-called core of the Second Plan, consisting mainly of the steel and fertilizer projects, which were under construction, and of ancillary development of coal, power and transport to sustain the increased steel production. The actual credits pledged at the meeting were supplemented by additional amounts at meetings of the Consortium in 1959 and 1960. Unfortunately, no additional pledges were

made in 1961 as the focus had by then shifted to the Third Plan and this was in part responsible for the pressure on reserves in 1960-61 and 1961-62.

The results of these concerted measures were both quick and telling. The precipitate decline in reserves was stemmed and in the remaining two and a half years of the Plan, they declined only by another Rs. 31 crores to Rs. 304 crores. Indeed, even this loss was occasioned chiefly by capital transactions, such as repayments of Rs. 35 crores to the International Monetary Fund. The overall deficit of Rs. 803 crores was fully covered by foreign aid. Taking the Second Plan as a whole, the total use of reserves amounted to Rs. 599 crores, net drawings on the International Monetary Fund to another Rs. 55 crores, and net receipts of banking capital to Rs. 3 crores. On the other hand, there was a net outflow of private capital of Rs. 27 crores during the period. The utilization of foreign aid during the Plan amounted to Rs. 1,441 crores, of which Rs. 543 crores was received in the form of commodity assistance under P.L. 480 etc. The balance of Rs. 898 crores comprised grants of Rs. 177 crores and loans and credits of Rs. 721 crores.

The stresses and strains to which the economy was subjected during the Second Plan were rewarding in many senses from a long-term point of view. The importance of external resources for the development of Indian economy came to be more explicitly recognized, not merely by economists and experts, but also by the people as a whole. Indeed, it would be no exaggeration to say that thinking in industrialized countries on the subject of aid to developing countries was greatly stimulated by observing what happened in India during the Second Plan period. The impressive increase in industrial production — it was nearly doubled over the first wo tPlans — and the demonstrable dependence of such a rate of development on external aid, created climate favourable to economic aid in many countries, most significantly in the U.S.A. In India, emphasis on export promotion, the importance of external aid and private foreign investment and the determination to plan future development in such a way as to enable the country after a certain specific period of time to develop without aid, came to be accepted as vital to the strategy of development.

At this point it seems relevant to refer to an important aspect of the evolution of India's commercial policy geared to the needs of the country's planned economic development. Bilateral trading arrangements based on rupee payments have come to be used widely with the objectives of (1) overcoming the persistent balance of payments difficulties through the avoidance of the use of gold or scarce foreign exchange resources; (2) diversifying and increasing Indian exports by opening up new markets for non-traditional exports and by reducing dependence on traditional markets; (3) obtaining capital goods and industrial raw material without

additional drafts on foreign exchange resources of convertible currency; (4) stabilizing prices of traditional exports; and (5) establishing direct trade contact with the centrally planned economies of Eastern Europe and Russia.

Bilateral trade based on non-convertible rupee financing, which is carried on mainly with East European countries and Russia, made rapid progress during the Second and Third Plans. Exports to Eastern Europe which averaged $ 10 million in the First Plan (or below 1 per cent of total exports) rose to $ 76 million and $ 238 million in the Second and Third Plans respectively or about 6 per cent and 15 per cent of India's total exports. Similarly, imports from Eastern Europe which averaged $ 12 million in the First Plan (or less than 1 per cent of the total) increased to $ 76 million in the Second Plan and further to $ 264 million in the Third or about 4 per cent and 10 per cent respectively of India's total imports.

The emergence of Eastern Europe as India's customer has thus had a great impact on India's exports and imports. Bulk of India's exports to these countries, however, continues to comprise traditional commodities, notwithstanding the diversification as reflected in the export of such non-traditional goods as ready-made garments, foot-wear, iron and steel, railway wagons, metal manufactures, etc. In contrast, and reflecting India's need for developmental imports, capital goods imports have shown a steady increase from about 45 per cent in 1960-61 to 61 per cent in 1965-66 of the total imports from these countries.

An important concomittant of the bilateral rupee payments arrangement entered into with these countries is the economic assistance (primarily credits) received by India for various development projects, which amounted to about $ 1,271 million (aid authorized) upto the end of the Third Plan. In fact, the economic assistance received from these countries is largely responsible for the rapid increase in India's trade with them, since these credits financed larger imports while repayments of credits gave rise to increased exports to these countries and thus minimized the transfer problem.

The Third Plan: The Third Plan was conceived as a launching of a decade or more of intensive development leading to a self-reliant and highly developed economy, with a perspective of progressively diminishing proportion of external aid to total investment. Although the idea of self-reliance was implicit in the long-term growth models on which the First and the Second Plans were based, the Third Plan both explicitly stated self-reliance as a major goal for the 25 years period, 1951-76, and sought to give it a precise meaning. This strategy involved for a limited period, a considerable increase in imports, especially of capital goods, requiring substantial non-commercial foreign assistance. When the

preparation of the Third Five Year Plan was taken in hand, the difficulties experienced during the Second Plan period as a result of the inadequacy of external resources, were very much in the minds of the planners. The substantial contribution made by the external resources to economic development during the Second Plan period was another element encouraging the planners in adopting the strategy of significant dependence on external assistance for the Third Plan in the context of the longer-term strategy, covering the period upto 1975, to reach the stage of self-reliant growth. It was also clear that in the absence of sizeable external assistance, the Plan would have to be of a modest size, involving a rate of growth lower than the increase in population and consequently a stagnant level of per capita incomes.

To secure a satisfactory rate of growth in national income and in productive capacity, the Third Plan envisaged a substantial step up in investment to Rs. 10,400 crores, which was Rs. 200 crores higher than the investment outlays in the First and Second Plans taken together. It was abundantly clear that the country's foreign exchange reserves at a level of Rs. 300 crores at the beginning of the Plan, could no longer be drawn down to meet the foreign exchange needs of the Plan. Two questions had, therefore, to be faced; what would be the gap in external resources for a Plan of this magnitude and whether, in fact, external assistance would be available to fill it?

The foreign exchange calculations for the Third Plan showed total import requirements over the five-year period to be Rs. 6,030 crores.* This was composed of the import component of investments assessed at Rs. 2,030 crores, general maintenance needs of Rs. 3,800 crores and Rs. 200 crores of components and intermediates required by the domestic capital goods industries. On the receipts side, earnings from exports were estimated at Rs. 3,700 crores. While the capital repayment liability in the Third Plan period was estimated at Rs. 550 crores, no surplus was expected from the invisibles account due to the mounting debt services payments. Thus, domestic capacity to finance imports was estimated at Rs. 3,150 crores as against import needs of Rs. 6,030 crores, and a gap of Rs. 2,880 crores emerged in foreign exchange resources indicating broadly the size of total aid required.

The amount of external assistance India sought for the Third Plan was Rs. 2,600 crores. Since this was Rs. 280 crores short of the estimated requirements, the direct import content of Plan projects was cut by Rs. 130 crores and the targets for maintenance of imports were reduced by another Rs. 150 crores.

Quite apart from the cuts made in import requirements in order to

*This excluded Rs. 600 crores of foodgrains to be imported from the U.S. against payment in rupees under her P.L. 480 programme.

reduce the figure of external assistance needed for the Plan, the estimates of export earnings for the Plan period were placed at as high a figure as could, on any judgement, be possibly sustained. India was anxious not to seek more aid than was absolutely necessary.

The breakdown of the requirements of aid of Rs. 2,600 crores was as follows:

	(Rs. crores)
Import payment for Plan projects	1,900
Maintenance needs of capital goods industires	200
Debt refinancing	500

It is significant that the total aid requirement was related to import of capital goods, production of capital goods and repayment of capital. This was on the theory and in the belief that external assistance should be used for capital purposes only. While this view was, in a sense, sound it also led, it would seem, to a certain amount of confusion. For the repayment of capital to be made possible by external aid, either there had to be straight forward refinancing of outstanding loans, or a financing of the normal imports of the economy thus freeing resources generated by Indian exports for debt repayment. Another point which was lost sight of in this pattern of thinking was that the total requirements of external finance could not be equated to the payments due on imports of identifiable capital goods. Many projects in the course of their construction create indirect import demands and if these are not covered by assistance from outside, the setting up of the project may eat into the country's external resources, even though superficially the project is being financed by external aid. Another feature not adequately appreciated was that many of the schemes included in the development programme of the Third Plan were not in the nature of conventional projects. Thus, the programmes for agriculture, transport, health and education did require sizeable imports, but not of what is commonly known as capital goods. Some of the difficulties which arose in the implementation of the Third Plan were attributable to the fact that these points had been initially overlooked both by India and the countries helping her.

The attitude of the countries on whom India had to rely for assistance showed considerable appreciation of Indian needs and a genuine desire to help the developmental effort on which the country was about to embark. Two of the more important and concrete expressions of this appreciation were the visits to India of a Three Wise Men's Mission* and the Hoffman Mission** while the Third Plan was still on the anvil.

*Consisting of Sir Oliver Franks (U.K.), Mr. Alan Sproul (U.S.A.) and Dr. Hermann Abs (W. Germany), top bankers from the respective countries.

**Sponsored by the World Bank.

Both these missions examined the content and strategy of the draft Third Plan and the estimated foreign aid requirements and endorsed the view that the scale of aid estimated in the draft Plan was necessary for the successful implementation of the Plan targets.

The Aid India Consortium* organized by the World Bank first met to consider India's aid requirements for the Third Plan in May-June 1961. Besides original participants, France and the International Development Association also attended the meeting and made pledges for assistance during the first year of the Third Plan. In the following year, Austria, Belgium, Italy and the Netherlands joined the Consortium. Since then, the Consortium regularly met for pledging assistance for each year of the Third Plan. The total amount pledged by the Consortium for the Third Plan as a whole aggregated to Rs. 2,606 crores.

TABLE V

Pledges of Consortium Assistance to India during the Third Plan

	(Rs. crores)**
Austria	8.6
Belgium	11.5
Canada	82.5
France	57.0
West Germany	306.9
Italy	80.8
Japan	138.2
The Netherlands	20.8
The United Kingdom	246.7
The U.S.A.	1,088.0
Total of Countries	2,041.0
International Bank for Reconstruction and Development and International Development Association	564.5
Grand Total	2,605.5

In addition to the aid from the Consortium, India also received assistance from many countries outside the Consortium, notably the U.S.S.R. and other East European Countries. In fact, even before the Third Plan commenced, the U.S.S.R. and other East European countries had pledged assistance of Rs. 294 crores specially earmarked for the Third Plan projects. Additional commitments of aid outside the Consrotium pledges were also made by a number of countries. There was also a sizeable amount of Rs. 1,285 crores of assistance authorized before the commencement of the Third Plan but not utilized by the end of the Second Plan period and was thus vailable for utilization during the Third Plan. Total authorization of external assistance during the Third Plan period amounted to Rs. 2,928.7 crores, Rs. 2,300.6 crores in

*The World Bank, the U.S.A., the U.K., Canada, West Germany and Japan were the members of the Consortium.

**At the prevailing exchange rate.

loans repayable in foreign currencies, Rs. 49.6 crores in loans repayable in rupees, grants of Rs. 127.9 crores, and P.L. 480 assistance of Rs. 450.6 crores.

Although the quantum of aid promised was fully in accord with the expectations of aid on which the Third Five Year Plan was framed, the country's foreign exchange position continued to be a constant cause of worry during the Third Plan period. The loss in the foreign exchange reserves during the first two years of the Third Plan could be held down to Rs. 8.5 crores only after a net drawing of Rs. 70 crores from the International Monetary Fund. In the third year, the position improved with a rise in reserves of Rs. 10.7 crores, even after a repurchase from the Fund of Rs. 23.8 crores. In the fourth year the reserves again suffered a loss of Rs. 56.1 crores, but this was substantially recouped in the last year of the Plan, partly with a net drawing of Rs. 29.8 crores from the International Monetary Fund. Thus, notwithstanding a net drawing of Rs. 76.3 crores from the Fund, the foreign exchange reserves showed a small decline of Rs. 5.6 crores over the Third Plan as a whole, while the Plan itself had envisaged no net drawing from the reserves.

Excluding commodity assistance under the P.L. 480, actual imports during the Third Plan averaged Rs. 1,047.5 crores a year which was below the Plan estimates of Rs. 1,150 crores. The export performance was also in line with the Plan expectations. It was estimated in the Plan that Rs. 3,700 crores would be realized from exports over the Plan period; in fact, the export earnings were Rs. 3,734 crores.

Where the Plan expectations did not materialize was mainly in the field of aid disbursements. External aid, other than commodity assistance, of Rs. 1,921 crores fell short of the Plan expectations by as much as 26 per cent. The position was worse still in the first three years of the Plan when the aid disbursements averaged about Rs. 329 crores per year. Shortfall in aid disbursements had many reasons and many consequences. It caused concern among the countries which were giving aid to India, no less than to the planners and the Government of India. The problem was analyzed on the one hand by the World Bank economists and, on the other in India by the committee set up under the Chairmanship of Prof. V. K. R. V. Rao in the Planning Commission. As a result of these studies, a number of measures were adopted, both by the Indian Government and by the Consortium countries, to expedite disbursements. The rate of utilization during the last two years of the Plan averaged sharply upwards to Rs. 468 crores per year.

External Assistance received in the Three Plans: During the fifteen years covered by the Three Plans, the total external assistance authorized amounted to $ 12,217 million, of which loans accounted for $ 8,048 million, grants $ 813 million and P.L. 480/665 and Third Country

Currency assistance $ 3,356 million. Assistance actually utilized amounted to $ 9,397 million, $ 5,752 million in loans, $ 699 million in grants and $ 2,946 million in P.L. 480/665 and Third Country Currency assistance.

The Fourth Plan: The last year of the Third Plan was one of considerable travail for the economy. Hostilities on a serious scale broke out on the country's north-western borders. Following the Chinese incursion into the Indian territory in 1962, defence expenditure on both revenue and capital account had increased by Rs. 535 crores between 1960-61 and 1963-64. In the following year, *i.e.* 1964-65, there was a marginal decline of Rs. 10 crores under this head. The hostilities with Pakistan resulted in a setback to the hopes that could be entertained about reducing outlays on this score. At the same time, the foreign assistance picture turned cloudy, with aid-givers cutting off fresh authorization of assistance altogether for a few months. Of even more serious consequence was the widespread failure of the monsoon. Although in financial terms the Third Plan targets were reached by the end of the Plan period, several of the physical targets of production and capacity were in the result not achieved. The progress in the Third Plan period thus turned out to be less than adequate and less than anticipated. The most significant shortfalls occurred in the agricultural sector.

But the year following was to be worse still; for the second year in succession, the rains failed badly. In 1966-67, therefore, the country faced unprecedented difficulties in the form of severe drought conditions over large part of the country. Stringent restrictions were placed on imports, huge funds having to be provided for commercial imports of food, while the setback in agriculture reduced availabilities for exports and contributed to the fall in export earnings. Not only did the fall in agricultural outturn lower the quantum of agricultural and agro-based export commodities available for export, but given the importance of prices of food and other agricultural commodities in the general price level, contributed to the growth of inflationary situation which militated increasingly against the competitiveness of our exports in the world markets. Measures taken in early 1966 to maximize exports, such as export incentives through import entitlements, tax credits and other forms of assistance for exports, simultaneously with further tightening of imports and raising of import duties, proved inadequate to meet the situation as it developed. Export earnings failed to register any improvement. Private imports were cut down severely to reduce the import bill. But this process adversely affected domestic production of those sectors of industry which were dependent on imports. A net drawing of Rs. 89.3 crores was made on the Fund in April 1966 to meet the pressure on reserves.

The selective export incentive measures, such as import entitlement schemes, tax credits and subsidies aimed at compensating the export industries for higher domestic costs, proved progressively inadequate as the inflationary momentum in the economy gathered strength both by the fall in agricultural output and cut in imports and they needed to be, and were, periodically revised by augmenting their range and quantum. These could only serve as *ad hoc* palliatives. It was felt that more radical measures were necessary to reduce the growing imbalances in the economy including those in its external sector, and what was needed to bring about an enduring prospect of growth was a better realignment of domestic and external prices through a change in the par value of the rupee. This was done on June 6, 1966, by devaluing the rupee by 36.5 per cent.

An exchange rate realignment has a pervasive effect throughout the economy, as against the temporary and limited influence of selective export incentive measures and administrative import controls. It can be expected to deal with the disequilibrium in the balance of payments through market forces so long as autonomous additions to domestic money incomes are avoided to hold down the price level. Trade policy was accordingly refashioned and liberal policy for imports was adopted. A revenue duty of 10 per cent *ad valorem* introduced in February 1965 was abolished. The duties on items of imports other than consumer goods were reduced. But in the event inflationary increases in domestic money incomes were not prevented. In the context of the famine conditions in large tracts of the country and the political and social imperatives directly attributable to them, efforts to eliminate deficit financing were not successful.

The beneficial results expected from devaluation were almost entirely frustrated by the failure of 1966 monsoon and the consequent setback in agricultural production in the 1966-67 season. Emphasis in the economic field had to be given to measures aimed at the short-term objectives while longer-term development and investment had to be allowed to suffer. The Fourth Plan due to start in April 1968 was not formulated and an interregnum in planning through five-year developmental plans ensued. It was clear that the need of the hour was to achieve a measure of stability in the economy before the pace of progress could be resumed or accelerated. When the rupee was devalued, sizeable external assistance was secured with a view to providing for the minimum food needs of the population and to reactivate as quickly as possible the surplus capacity in large sections of industry following a cut back in import of raw materials and components. The Aid Indian Consortium pledged non-project assistance of $ 900 million to support the import liberalization programme adopted in June 1966. Aid authorizations proportionately increased from $ 1,362 million in 1965-66 to $ 2,082 million in 1966-67.

The second successive failure of the monsoon, however, brought about a further deterioration in economic activity. Though in money terms the total investment in the economy during 1966-67 was of the same order as in the previous year, namely Rs. 2,800 crores, there was in real terms a decline in invetment, because the prices of inputs of capital formation were higher. The rate of investment as a proportion of national income declined to 12.2 per cent from 13.8 per cent in 1965-66. In the circumstances, the sizeable foreign assistance arranged did not come to be utilized as quickly as it was hoped and anticipated. The utilization of assistance dropped from $ 1,621 million in 1965-66 to $ 1,474 million in 1966-67, affected in part by the temporary pause in fresh authorization following the outbreak of hostilities with Pakistan in September 1965. There was a sharp decline in utilization of loans other than P.L. 480 loans from $ 912 million to $ 792.5 million and a fall from $ 525.4 million to $ 447.2 million in gross receipts under P.L. 480 Title I. There was, however, a modest offset to this fall in utilization by the rise in utilization of grants other than under P.L. 480 Title I from $ 72.2 million to $ 87.3 million. Imports other than those under P.L. 480 Title I were held down to $ 2,246.8 million from $ 2,278.7 million in 1965-66, but exports also declined from $ 1,641.8 million to $ 1,534.8 million, partly affected by the dislocation in the export trade immediately following the devaluation of the rupee. With gross invisible receipts down from $ 422.7 million in 1965-66, during which they were assisted by the inflow under the National Defence Remittance Scheme, to $ 355.6 million in 1966-67, the current account deficit in the balance of payments widened over the year by $ 65 million to $ 1,373.4 million. To meet the overall deficit, a net drawing from the Fund of $ 130 million had to be made, which was more than double that in 1965-66 when the amount involved was $ 62.6 million.

The Fourth Plan should ordinarily have commenced in 1966 on the expiry of the Third Plan but for these exceptional difficulties experienced by the economy during 1965-66 and 1966-67. Though the necessary preparatory work had been undertaken and a Draft outline was brought out in August 1966, the finalization of the Fourth Plan was delayed due to the severe stresses which developed in the economy and as, with the lapse of time, many of the assumptions and estimates of the Draft outline were no longer valid. A revised Draft of the Fourth Plan, 1969-74, was published in April 1969 and this was later adopted with some modifications by the National Development Council in March 1970.

In formulating the revised Fourth Plan, the successes and failures of Indian planning so far, the trends in the economy and in particular the experiences of 1965-67 played an important role. The Fourth Plan aims at development in conditions of stability and reduced uncertainties — the former being dependent upon the supplies and prices of agri-

cultural commodities particularly of food and the later through minimizing dependence on foreign aid. Recognizing the close inter relationship between the level of prices, ability of the Government to raise resources, Plan outlays, industrial activity and export growth, the Fourth Plan aims at a continuing increase in agricultural production and building of sizeable buffer stocks to even out supplies of foodgrains. As an essential pre-requisite to relative stability, the Plan emphasizes the need to mobilize internal resources in a non-inflationary manner and to relate the Plan outlays to the possibility of raising resources without giving rise to inflationary pressures. The Plan also seeks to safeguard the growth rate against uncertainties of external resources by reducing the country's dependence on foreign aid; and from this point of view, it is planned to do away with P.L. 480 imports, while foreign aid net of amortization and interest payments is proposed to be reduced by about half of the present level by the end of the Fourth Plan. As an important step towards the goal of self-reliance. the Plan aims at securing balances on international account by limiting the growth of imports to manageble proportions through increased agricultural and industrial production and by providing for an increase in exports of about 7 per cent a year.

With these policy objectives in view and in order to accelerate the pace of economic activity so as to provide productive employment and bring about significant improvement in living standards, the Plan provides for an initial outlay of Rs. 24,882 crores, of which Rs. 15,902 crores or over 60 per cent would be in the public sector. Of the total public sector outlay, as much as 24 per cent is allocated for agriculture, irrigation and flood control, 21 per cent for industry and minerals, 20 per cent for transport and communication and another 15 per cent for power.

The total requirement of external resources during the Fourth Plan is estimated at Rs. 10,050 crores comprising imports valued at Rs. 9.630 crores, net outgo of Rs. 140 crores on account of invisible transactions and a repayment of Rs. 280 crores to the International Monetary Fund. This is exclusive of total debt service payments (amortization plus interest) estimated at Rs. 2,280 crores. This order of foreign exchange requirements will have to be met out of external assistance and export earnings. In accordance with the policy objective of reducing dependence on foreign aid, the aggregate external assistance (net of loan repayments) required during the Fourth Plan is estimated at Rs. 2,614 crores, thus leaving the balance of foreign exchange requirement amounting to Rs. 7,436 crores to be met out of export earnings. This implies that export earnings will have to go up from about Rs. 1,365 crores in 1968-69 to about Rs. 1,900 crores in 1973-74 or at a compound rate of about 7 per cent per annum. According to the Plan, this order of growth rate in exports does not appear to be beyond reach if a proper reorientation is

brought about in institutional arrangements and policies for export promotion.

Aggregate external assistance until the end of March 1969 has amounted to $ 13,614 million out of the total authorization of $ 16,546 million, leaving the outstanding amount of aid at $ 2,719 million* available for use from 1969-70 onwards. Loans account for $ 11,207 million of the total assistance authorized, the share of grants being $ 1,038 million, and that of P.L. 480/665 aid and Third Country Currency assistance $ 4,301 million. Similar break up of utilization till the end of 1968-69 was $ 8,664 million of loans, $ 996 million of grants, $ 3,954 million of P.L. 480/665 and Third Country Currency assistance. The carry over consists of $ 2,524 million in loans, $ 42 million in grants, and $ 153 million in P.L. 480/665 aid and Third Country Currency assistance.

While it is impossible to form any kind of a historical view of the nature of problems and difficulties which were responsible for the very large gap which has been persisting between the commitment and disbursement of aid to India, it is possible to draw attention to some of them. India is, in a sense, a pilot project in the matter of international aid to a developing country. No doubt there had been a Marshal Plan before, under which massive aid had flown from the United States to war-devastated Europe. That kind of an approach was apparently not acceptable in the very different conditions under which aid was sought by, and being given to, India. India had first to prepare her Plan before aid could be pledged for it. By the time most of the aid giving countries had considered the Plan and were ready to make their commitments towards it, some months of the Plan period had already elapsed. Even after pledges were made at the Consortium meeting, it took a good deal of time for bilateral agreements to be negotiated and signed under which specific projects were picked up for financing by different members of the Consortium. And it was only thereafter that the whole physical process of starting construction, ordering and installing machinery could be taken in hand. On the Indian side too, much of the preparatory work which could have been not only started but completed before external aid was actually committed for different projects, was, as the Rao Committee pointed out, delayed for one reason or another. Once the project did get to a start, the pace of disbursement of aid was linked to the deliveries of plant and equipment for which order had been placed abroad and this, in the case of major projects, meant something like 2 or 3 years.

While procedural problems did contribute to the delays in the disbursement of aid, the study of aid utilization and attendant problems,

*Adjusted for the devaluation of pound sterling and Danish Kroner in November 1967 and also for lapsed amounts in respect of P.L. 480 assistance.

which has been going on from year to year both in India and in the countries and international institutions giving aid to India, has resulted in many changes affecting some of the fundamental assumptions on which aid was being sought and given. The process is a continuing one. It is, however, possible to discern the main directions in which progress has been taking place.

First and foremost, there has been a growing recognition, both in India and outside, of the importance and value of aid which is not tied to projects. The basic consideration underlying this change is the fact that the gap in resources which external aid to fill in a developing economy is not to be measured by the cost of the direct import requirements of machinery and equipment of identifiable projects. In the last analysis, the gap is a gap between domestic savings and investment which, unless it is filled by an inflow of capital from outside, must result in inflationary pressures at home and balance of payments difficulties abroad. Other arguments have also been used to justify non-project aid, such as the indirect import costs of equipment and material delivered from domestic factories for Plan projects, the importance of getting the utmost production out of installed capacity as against creating additional capacity, the consideration that when aid is tied both to a country and to named projects, the recipient of aid usually has to pay a much higher price for what it imports, and finally, that the Plan consists not merely of projects, but of programmes in the field of agriculture, education, transport, health, etc., whose foreign exchange requirements cannot be covered by project aid. The proportion of non-project aid has, as a result, progressively increased from about 26 per cent of the aid authorized (excluding P.L. 480 assistance) during the Second Plan to 40 per cent in the Third Plan. It went up to 45 per cent in 1966-67 and to 82 per cent in each of the years 1967-68 and 1968-69.

The other favourable trend which is discernible is in regard to the terms on which aid is offered. Initially, much of the so-called aid which India received was really in the nature of commercial credits. Interest rates were commercial rates and consequently high. The repayment period was also very short. Thus in the Second Plan, the average rate of interest charged worked out, on rough basis, to 4.6 per cent. The average for the Third Plan on a similarly rough basis has come down to 4 per cent. Loans from the International Development Association, as well as from the Agency for International Development of the U.S. Government carry only nominal annual payments in the nature of service charges rather than interest proper. Credits from other sources too have been showing a definite improvement in regard to terms—both a lowering of rate of interest and spreading of repayments over longer period of time. During 1966/67-1968/69 the average, therefore, calculated on the same rough basis has declined to around 3 per cent per annum.

Welcome and helpful as these trends have been, much more clearly needs to be done over a longer period of time, given the balance of payments prospects of India. Debt servicing has been a growing burden on the Indian economy and it has been pre-empting a progressively rising share of the country's export earnings. Outlays on debt service on official loans alone have escalated from less than 3 per cent of the country's export earnings in the First Plan period to about 13 per cent in 1961-62 and nearly 25 per cent in 1966-67. This ratio was around 27 per cent in each of the two years, 1967-68 and 1968-69.

The combined effect of the various qualitative short-comings, despite quantitative adequacy, in regard to the aid which India has been receiving, was reflected in the continuance of an extremely tight foreign exchange situation in which industry continued to operate well below capacity in many sectors, adequate fertilizers could not be imported to meet the farmer's need and the rate of growth was slower than India or her friends could feel happy with.

The Role of Private Foreign Capital: The flow of aid from Government to Government discussed above is a relatively new development. Normally, the external resources which a country needs and can have at its disposal are obtained by way of inflow of foreign capital or by the country's own export effort. Historically, the inflow of private foreign capital has made a major contribution to the development of economies like those of the U.S.A. and Canada. Even today there are large movements of capital from one country to another. The view, therefore, is often expressed that if the developing countries of the world do enough to attract private foreign capital, the external resources, which they need for their development, can be found without any aid at Government level.

Such a view, though it still has its adherence among those who believe in the doctrine of *laissez-faire* and have an ideological bias against governmental action in the economic sphere, has rapidly lost ground in the last two decades, and in the light of the experience gained, it is now widely recognized that the volume of private foreign capital investment likely to go to developing countries, even if there was complete freedom on both sides in the matter, would quantitatively and qualitatively be inadequate for their needs. Investment opportunities in developing countries continue to rise. The fields in which private foreign capital seeks opportunities for external investment are limited — with mining and extractive industries in general being among the most important because such investments have to be made wherever the mineral resources exist. On the other hand, there are so many sectors of the economy in which developing countries have to invest, such as education and health, power and transport as also a variety of industries which have a high importance in national development plans which are likely to be un-

suitable or unattractive for private investment.

Quite apart from these limitations of size and scope, countries experiencing balance of payments difficulties have to take into account the cost of servicing foreign investment. Many developing countries, including India have such a heavy debt repayment burden that they are being cautioned against accepting credits on commercial terms as distinct from aid terms. Considering that equity investment must in the long run earn more, usually much more than loans, it would be difficult for a country, which shuns private foreign capital, to service foreign investment unless it imposes restrictions on remitances which inevitably lead to a drying up of fresh investment. Even though initially the remittance burden on new private foreign investment is not necessarily high because dividends can only be earned after the project begins to earn profits and upto a point profits are retained for plough back rather than remitted, over the long run retained profits increase earnings and thus the remittances.

To say this is not to suggest that private foreign capital cannot play a useful and a valuable role in helping development in a country like India. There are projects whose contribution to strengthening the country's balance of payments either by saving imports or by stimulating exports would far exceed the cost of servicing commercial debts or private foreign capital. With the tremendous shortage of capital that concerns most developing countries, the attempt must be to maximize the availability of capital and as neither domestic capital nor aid can meet the needs of development at an adequate rate, there is a good case for allowing private foreign capital on a selective basis in accord with the changing requirements of the economy. In addition, it has to be recognized that certain types of technology, ranging from the more sophisticated products of recent invention to managerial skills of a specialized nature are difficult to obtain except through some form of collaboration* with a firm which is operationally making use of them. It is this realistic approach that lies behind the policy of the Government towards foreign capital and know-how and led the Government to announce towards the end of 1968 the industries (a) where foreign investment may be permitted with or without technical collaboration; (b) where foreign technical collaboration may be permitted but not foreign investment; and (c) where foreign collaboration (financial or tecnical) is considered necessary.

That private foreign capital has an important role to play in the country's economic development has been recognized by the Government of India as is reflected in its various policy announcements made from time to time. In fact, a specific provision was made in the Third Plan

*The Survey Report on Foreign Collaboration in Indian Industry published in 1968 by the Reserve Bank of India contains comprehensive details of imports of know-how and managerial skills by the Indian Industry.

for an inflow of Rs. 300 crores of private foreign capital as part of the external resources required for the Plan. Table VI gives a broad idea of the magnitude and the trends in the private foreign capital inflow during 1956-1966

The main points that emerge from the data shown in the Table are that though the level of gross inflow during 1962-66 is somewhat higher than in 1956-61, it has shown wide fluctuations; that the gross outflow has been higher, and that as a result, net inflow representing net transfer of resources to the country has been lower and uneven.

Accent on Exports: In the final analysis, country has to pay for its imports in terms of exports. In a sense, this pattern of exchange is symptomatic of the economic maturity of a country. Indeed, there is no doubt that if there is a choice between paying for imports through current exports or through foreign loans, the former is much to be preferred, if only because foreign loans entail a large and recurring liability which has to be met over a period of years in terms of additonal exports. Since the amount that a country can currently export is a function of, among other things, the absolute size of its current production, a poor country suffers from a severe limitation on both the size and the growth of exports India has been no exception to this rule.

In order to understand the policies which India has adopted for getting over some of the chief obstacles to increasing exports, it may be useful to indicate very briefly the main problems in the field. The limitations of the absolute size of the country's total production relative to its population has been alrady referred to. Again, while in a country where per capita real incomes are extremely low, a certain increase in consumption per head is virtually unavoidable on humanitarian grounds; and such an increase, however marginal, superimposed on a rapidly growing population involves both a rise in imports and an adverse effect on the export availabilities of many items of its output.

Further, costs in a growing economy are often high, at least initially, owing to various factors, such as sub-optimum scales of production, the high cost of capital and of technical skills, high transport costs and often, inefficiency. These costs tend to decline at higher scales of production and with the growth of factor supplies.

There are, however, some more deep-seated problems to be faced by an underdeveloped country trying to increase its exports. As a rule, each such country has a traditional export pattern made up of raw materials with which it has been endowed by nature. Tea, jute, cotton, oilseeds, mineral ores are the kind of things which India has been exporting for a very long time. Some of these items have also been processed into semi-manufacture or manufctures and been exported. The scope for expanding the exports of such traditional items suffers from many

TABLE VI

Inflow of Foreign Investment into the Private Sector

(Rs. Crores)

	1956	1957	1958	1959	1960	1961	*Total* (1956-61)	*Annual average* (1956-61)	1962	1963-64*	1964-65*	1965-66	1966-67
A. Private Sources (Net inflow)	23.8	20.8	2.5	10.2	51.7	28.1	137.1	22.8	27.5	50.6	81.8	44.2	104.6
1. Gross inflow	30.8	26.8	28.1	25.7	63.2	35.6	210.2	35.0	37.2	67.3	101.9	71.7	144.0
(i) Retained Earnings	19.2	9.5	9.1	14.6	14.1	15.8	82.3	13.7	7.8	9.8	20.4	18.8	14.9
(ii) Fresh inflow	11.6	17.2	19.0	11.1	49.2	19.8	127.9	21.3	29.3	57.5	81.5	52.9	129.1
2. Outflow	7.0	6.0	25.5**	15.5	11.5	7.5	73.0	12.2	9.7	16.7	20.1	27.5	39.4
B. Official Sources (Net inflow)	12.1	32.9	26.2	10.0	—1.4	16.8	96.5	16.1	10.7	30.6	22.6	29.6	56.1
(i) Gross inflow	12.1	32.9	26.4	12.6	5.2	25.1	114.3	19.1	21.9	41.6	39.3	47.2	88.1
(ii) Outflow	—	—	0.2	0.6	6.6	8.3	17.7	3.0	11.2	11.0	16.7	17.6	32.0
C. Gross inflow into the Private Sector	42.9	59.7	54.5	38.3	68.4	60.7	324.5	54.1	59.1	108.9	141.2	118.9	232.1
D. Gross outflow	7.0	6.0	25.7	18.1	18.1	15.8	90.7	15.1	20.9	27.7	36.8	45.1	71.4
E. Net inflow into the Private Sector	25.9	53.7	28.7	20.2	50.3	44.9	233.7	39.0	38.2	81.2	104.4	73.8	160.7

*Revised.

**Largely due to petroleum companies.

N.B. 1. Figures exclude foreign investments in banking and insurance companies.

2. The inflow has been computed, wherever possible, by eliminating valuation changes.
3. Individual figures may not add up to totals because of rounding up.
4. In view of the shift in the assessment period from calendar year to financial year it has not been possible to indicate the inflow/outflow during 1962-63.
5. Data for 1963-64 to 1966-67 include foreign private loans and suppliers' credits for which information was not available in the earlier years.
6. Changes in the branches' net position which were shown hitherto in the previous assessment upto 1962 on a gross basis are now appropriately shown on a net basis under inflow; profits of branches are deemed to have been distributed.
7. Retained earnings figures upto 1962 are inclusive of retained earnings of branches; and for the subsequent period these relate to Controlled Rupee Companies as profits of branches are deemed to have been distributed.

handicaps. As the manufacturing industries grow, the domestic demand for their product goes up and less is available for export. Countries already industrialized, which have their own industries of a similar kind, adopt protective policies to limit the volume of imports from developing countries. Last but not the least, advances in technology keep on providing new synthetic substitutes for natural raw materials. The prospect of expanding the traditional exports is, therefore, severely limited.

The attempt to diversify exports by producing new articles is equally frustrating. As a rule, new industries set up in developing countries do not have the advantages of scale of production, which industries already established in more advanced countries have. The high cost of capital and of technical skills also makes it difficult to export in competition with the industries of the more advanced countries. While a newly established industry can enjoy protection in the domestic market as an infant industry, any attempt to overcome the handicap of initial higher costs in export markets is apt to meet various obstacles. It is not surprising, therefore, that many developing countries in formulating their plans for development concentrate on industries which will help to reduce imports rather than industries which will help to increase exports.

When the Third Five Year Plan was being formulated, a determined effort was made to provide for a substantial increase in exports. As mentioned earlier, the target for the total export earnings of Rs. 3,700 crores has in fact been achieved, the actual realizations being Rs. 34 crores higher than this figure. The annual performance has been as follows:

TABLE VII

Exports of F.O.B.

Year			*U.S. $ Million*
1960—61	..	..	1,324
1961—62	..	..	1,404
1962—63	..	..	1,430
1963—64	..	..	1,684
1964—65	..	..	1,683
1965—66	..	..	1,546
1966—67	..	..	1,535
1967—68	..	..	1,673
1968—69	..	..	1,823

In contrast to the virtual stagnation in exports during the first two Plans, the export performance during the Third Plan was satisfactory. The increase in the first three years of the Third Plan was the result of a rise in quantum as well as unit values of exports, diversification of the commodity pattern of exports and penetration into new markets. The pause in exports during the last two years of the Third Plan was due to

the decline in agriculture-based items of export (*e.g.* cotton and jute textiles) in the wake of shortages of raw cotton and raw jute. In 1966-67 however, exports declined sharply owing primarily to the severe setback in agricultural output, and to some extent due to the downtrend in international prices of primary products.

The more recent trends in Indian exports bear out that the new export policy initiated in the wake of devaluation of the Indian rupee has had its impact and that the decline in exports in 1966-67, the immediate post-devaluation year, was due to factors extraneous to the new export policy. An important aspect of the export performance since 1967-68 is the basic change brought about in the commodity pattern of Indian exports by the new export policy which has for its basis the development of non-traditional export items. The improvement in the export levels of non-traditional commodities was more striking than the overall increase in exports. The main non-traditional exports, such as engineering goods, iron and steel, iron ore and chemicals which totalled $ 175 million in 1965-66 rose to $ 347 million in 1968-69. Between 1960-61 and 1965-66 these items had increased from $ 93 million to $ 175 million. Exports of engineering goods incresed from $ 37 million in 1965-66 to $ 92 million in 1968-69; iron and steel rose by $ 79 million to $ 105 million; and chemicals showed an increase of 39 per cent to $ 32 million. The earnings from iron ore rose by 33 per cent to reach a sizeable level of $ 118 million reflecting partly the enhanced role of state trading in the exports of iron ore. On the other hand, the major traditional items, such as jute manufactures, tea and cotton textiles have shown declines between 1965-66 and 1968-69 due to high raw material costs and keen external competition. Thus, the spurt in exports in 1967-68 and 1968-69 was largely due to the rapid growth of exports of non-traditional items which in turn is attributable to the new export strategy devised in 1966-67 to make the devaluation of the rupee effective. The indications are that the rising trend in exports, particularly of non-traditional items, may continue.

IV. Conclusions

Scarcity of foreign exchange has in fact been the pivotal difficulty in economic planning in India. The realization of this has progressively grown since the latter half of the Second Five Year Plan. India does not have perfect or even approximate domestic substitutes for some of the foreign products needed to carry out the investment programmes. At the same time, the secular demand for India's major commodity exports, such as jute and tea appears sluggish, that for minerals and other raw materials, volatile, while exports of such products as steel and light engineering goods can be expected to improve substantially over a very long period of time. While India must strive hard as it has been doing

to develop exports as also invisible foreign exchange earnings, clearly it will require some substantial continuing inflow of foreign assistance in the next decade or so.

Given its natural endownments and size, India has it within its capacity to achieve a viable self-sufficiency within a reasonable spectrum of time provided adequate external resources are made available in the mean-while. The hey day of foreign aid in India was reached during the formative period of the Third Plan. Outlook for adequate foreign assistance flows, however, varies, as could be expected, from time to time. The labours of the Second United Natons' Conference on Trade and Development held in New Delhi early in 1968 do not seem to have been as successful in regard to the quantum of developmental assistance flows as the developing countries, including India, hoped for. These changes in aid outlook have, of course, to be taken in stride by the developing countries even though the lower the size of the flows the farther the prospects of achieving self-reliant growth recede in time. India would certainly strive to do so.

There are also two aspects of aid flows which merit attention irrespective of their size in case of most developing countries and certainly in case of India. First, whatever the quantum of external aid, it should be so available that it can be used in such an efficient manner that it contributes to the development of the recipient economy to the optimum level. This implies that the time taken in putting through a specific investment and bringing it up to the productive stage is reduced to the minimum from the point foreign assistance is arranged for the purpose. We have earlier referred to the considerable delay in the early part of the Third Plan in aid utilization and the subsequent measures taken to improve the position. Efficiency of foreign aid from the recipient's point of view is also affected by the aid being tied as to source. It is estimated that source tying involved a reduction in the real value of aid and, therefore, in its productive potential in relation to the quantum of assistance given, of between 12 and 13.5 per cent in case of Pakistan in 1960-63. For Tunisia, the direct cost of source tying of the United States assistance in 1965 has been put on a conservative basis at 20 per cent. Indeed, in respect of the total global assistance extended by the United States in 1965, aid tying to purchases within the United States put up the prices of aid-financed commodities 17 per cent above the world market prices. To the extent that the assistance is in the form of loans, there is a further effective deduction in the real value of aid in that the servicing payments are proportionately higher in relation to the real aid received.

The second aspect demanding immediate favourable action on the part of those who provide assistance relates to the terms on which assistance is given. India's own position in regard to debt servicing has

already been referred to. Prospects for exports from aid receiving developing countries, including India, are not too bright even on the most optimistic assumptions. The debt service burden on these countries must, therefore, be significantly reduced as soon as possible. India has fortunately already started receiving relief on this score from some of her aid givers to meet her immediate difficulties. Over the longer term, however, not only must there be substantial reduction in the interest charges and in the annual repayment instalments but the proportion of the loans in the total external resources inflow needs to be drastically reduced. It would not be improper to recall here that what was given after the World War II to the economies in Western Europe — with all their fund of sophisticated technological, entrepreneurial and other organizational skills and destruction only of their physical capital — to effect their reconstruction, was Marshall Aid. As much as 95 per cent of it was extended as grants and only 5 per cent as loans. The loans also involved very liberal terms as to interest and repayments. They had a maturity of 35 years and carried interest at 2½ per cent per annum payable annually, but without interest payments for the first 3½ years from the inauguration of the programme at the end of 1948. The amortization payments began in July 1956, *i.e.*, 4 years later still, and it was still provided that postponement or alteration or other modifications in the loan terms could be affected by mutual agreement if adverse economic conditions prevailed in any country. The total amount involved in this exercise of U.S. magnanimity after World War II was no less than $ 13.6 billion, $ 12.5 billion of which in grants and only $ 1.1 billion in loans. Annual disbursements amounted to $ 6.1 billion in 1948-49, $ 3.8 billion in 1949-50, $ 2.3 billion in 1950-51, $ 1.4 billion in 1951-52, at which levels they worked out to 2.3 per cent, 0.4 per cent, 0.8 per cent and 0.4 per cent of the gross national product of the U.S. in the respective years. Before the inauguration of the Marshall Aid programme, the U.S. and Canada agreed in 1945 to lend as much as nearly $ 5 billion to the U.K. repayable in 50 equal annual instalments with a grace period of 5 years and interest charge of only 2 per cent per annum, with the additional proviso of an automatic waiver of interest payments in any year in which the U.K. found itself suffering from the balance of payments difficulties. If advanced countries require such massive flows with such overwhelming grant element to recoup losses caused by war largely to their physical capital alone, surely India and other developing countries need and should be given even more liberal treatment in the matter of external assistance if they are to provide socially tolerable levels of growth for their very poor populations.

The current trends in aid, however, are not encouraging. In the closing years of the first development decade, the volume of foreign official aid has been stagnant as is borne out by the fact that the quantum of aid

has not kept pace with the growth of national product in the rich nations. The doubt has now arisen whether the developed nations will continue to provide assistance to developing countries at all. There seems to prevail in the rich countries a spirit of disenchantment with aid; with the result that the very purpose and feasibility of aid seem to be in question. This is partly due to the misconceptions and unrealistic expectations on the part of developed countries in regard to the duration of the development process; and partly due to the feeling that developing countries have not been making proper use of aid. There has also been a lessening of support for genuine development aid due to the increasing complexity and urgency of domestic problems in the aid giving countries.

There has been a similar feeling of disenchantment in the developing countries as well, though for different reasons. In the developing countries, there are signs of frustration and impatience and a measure of disillusion about the very nature of aid relationship. Development was often regarded in these countries as a continuation of the political struggle and as a rsult, the elimination of foreign rule was expected to open up avenues for early and easy prosperity. The nature of obstacles in the way of development and the kind of decisions required to be taken to overcome them were not always understood. Thus, for instance, the need for export growth was underestimated while agricultural development was usually neglected.

Donors as well as recipients tended to expect too much too soon from aid as a supplement to the national development effort. Modernization and development of low income countries were viewed by both the donors and recipients as an attempt to repeat the Industrial Revolution with the result that too much attention was focussed on individual investment projects rather than on the causes and results of slow progress. It also became clear that while aid givers were particularly interested in whether recipients made efficient use of resources placed at their disposal, such interest often gave rise to friction, misunderstanding and mutual irritation. Viewed in this context, the present donor = recipient relation ship does not seem viable for any length of time and a more purposive attitude to foreign aid is called for. Aid for development means more than a simple transfer of funds. It means a set of new relationship which must be conceived as an exercise in co-operation and partnership.

The publication by the World Bank of the Pearson Commission's Report which is appropriately called "Partners in Development", was timely. The Commission on International Development was set up by the World Bank in August 1968, under the chairmanship of Lester B. Pearson to review the impact of external assistance on the development of poorer nations over the past two decades, to identify the reasons for its success or failure and to evolve a long-term strategy for aid with a view to enlarging the flow of development finance — bilateral and multi-

lateral. The Commission in its Report submitted to the World Bank President in September 1969, has made a series of far-reaching recommendations for increasing the flow of resources in the seventies from developed to developing countries. The more important of these recommendations are: (1) official development assistance be raised to 0.7 per cent of each donor country's Gross National Product by 1975 and in no case later than 1980; (ii) aid funds should be made available for periods of at least 3 years to ensure continuity in the flow of aid; (iii) reduction in the interest rate, lengthening of the maturity periods and progressive untying of aid; (iv) liberal use of long-term debt rescheduling and refinancing; (v) World Bank lending should be made available at subsidized interest rate to the developing countries suffering from growing debt burden; and (vi) substantial increase in the resources of the International Development Association. The extent to which these recommendations will be implemented depends largely on the developed nations — their attitude to development aid, their approach to the general problem of economic development and the spirit of co-operation and partnership they are inclined to display in this great endeavour.

CHAPTER XV

RENTS AND WAGES

The endeavour is to examine the behaviour of rents and wages in the Indian economy in recent times, and to reflect upon the forces that determine rents and wages in the socio-economic context of this country. To the extent data are available, the analysis will be quantitative in character and the degree as well as the direction of change will be sought to be determined. But apart from this, some qualitative aspects of rents and wages and the mechanism for the control of rents and wages will also be discussed. Though the analysis relates generally to the post-independence period, and particularly to the era of planning, beginning with the year 1951 and spreading over India's first four Five Year Plans, occasional comparisons with the pre-independence period are also undertaken.

The study is divided into four parts, Part-I dealing with agricultural rents, Part-II with non-agricultural (urban) rents, Part-III with non-agricultural (industrial) wages and Part-IV with agricultural wages. The treatment of rents and wages whether in the agricultural or the non-agricultural sector cannot obviously be exhaustive, for, even as rents are of numerous varieties and pertain to several types of property, wages are of many categories and apply to several levels and grades of labour. It is not possible to deal comprehensively with the behaviour of rents for all manner of agricultural and urban property — land in its several varieties, residential accommodation of various categories and premises used for non-residential purposes, such as office accommodations, shops, warehouses and hospitals, to name leading categories. Nor is it possible to give a very exhaustive treatment of the wages of agricultural and industrial workers divided as these workers are into numerous grades which are differentiated on the one hand by the levels of earnings and technical skills and, on the other, by types of occupation — manual and mental, skilled and unskilled — and types of industries — traditional and modern, public sector and private sector. An attempt, however, is made to analyse the rents of the dominant categories of lands and buildings in the agricultural and the urban sectors, and the wages of the main categories of workers, particularly organized workers, in the industrial sector and the generality of workers in the agricultural sector. In studying rents and wages, one has to be conscious that one is dealing with the rewards of two important factors of production, rents being the turn on the ownership of property, for allowing its use by others, and wages being the reward to workers for giving their labour. Interest earnings, which are the reward for allowing the use of one's capital by

someone else, and profits, which are deemed to be the returns to ones entrepreneurial skill, risk-taking and successful operation of business, are the other major rewards to productive factors and are dealt with elsewhere.

A. RENTS

I. Agricultural Rents

The nineteenth century, for the first time, brought a situation in India in which land became a valuable asset to hold in order to earn rents as distinct from being used for agricultural purposes to obtain income from the process of cultivation. This emergence of land as a valuable rent-yielding property was obviously due to the growth of population and the consequent growth of towns and the opening-up of the new channels for trade and communication in the country-side through the development of the railway, the emergence of ports, etc. The pre-nineteenth century phenomenon of an unlimited supply of land in relation to a meagre population thus came to an end and the demand for land, for the first time, began to exceed the supply then available, making it necessary for those who wanted to use land to pay rents to landowners. The problem of high rents in agriculture first noticed on a wide scale in the nineteenth century, became a country-wide phenomenon in the first half of the twentieth century and the demand for rent reduction became a major objective of social policy on the part of reformers, intellectuals and the national leadership. The adverse supply position in relation to demand led landowners to step up rents, evict tenants from time to time, indulge in rack-renting and thus cause great hardship to the tenantry. Peasant disturbances quite often had their roots in these phenomena of rack-renting and evictions and land-hunger grew quite seriously. These tendencies began to manifest themselves so sharply by the 1940's that, as soon as independence was secured, the land reform movement took a very definite shape and brought immense pressures to bear upon various administrations in different parts of the country to frame comprehensive land legislation for security of tenure on the one hand, and for the reduction and subsequent abolition of rents on the other.

Factors Determining Agricultural Rents: After the beginning of the era of planning, most State Governments under the guidance of the Planning Commission and the Central Government framed comprehensive legislations for rent reduction and other land reforms. By this time, the demand and supply situation with respect to land had become quite acute. Land is an asset whose supply cannot be increased readily. Irrigation and reclamation programmes are not easy to administer and the resources

required to bring additional lands under the plough are generally very large and often beyond the reach of small peasants. Even so, recent estimates show that between 1951 and 1961, grass-cropped land increased by about 16 per cent, thanks to reclamation, irrigation and double-cropping. This was, no doubt, a very welcome feature at a time when the demand for land was growing very rapidly owing to a population growth of 21.5 per cent and an income growth in real terms of about 4 per cent over the decade. By all accounts, the increase in the demand for land was faster than the additions to supply, with the result that the market value of land increased phenomenally while rents, which represent the price to be paid for the use of land, also showed considerable increase. An additional factor which kept land-hunger or the demand for land growing very rapidly was that new jobs in the non-agricultural sector, though increasing by more than a million each year, were not increasing fast enough to cause a net shift of the population from the agricultural to the non-agricultural sector. The pressures of agricultural populations on agricultural land continued unabated and, in fact, increased further, with the result that agricultural rents had a built-in tendency to increase quite rapidly. The economic forces of demand and supply were bound to bring about generally increasing rents in all sectors and no less so in the agricultural sector.

Land Reforms and the Mechanism for Agricultural Rent Control: It was in the face of these economic forces which tended to push up rents that the attempt of the land reform movement to reduce the burden of agricultural rents must be appreciated. The main planks of land reforms in almost all the States of this country were (a) security of tenure for all those tenants who had been cultivating lands for, say, five years; (b) reduction of rent burdens wherever these were shown to be excessive; (c) the right on the part of the tenant to purchase the land from the landowner at a price generally lower than the "free" market price of land and thus relieve himself of the rent burdens altogether. Legislations, of course, varied from State to State, but, by and large, wherever the tenant cultivator and the landowner agreed to the customary or the prevailing levels of rent, the executive authority allowed these rents to prevail and did not interfere. But wherever a tenant found the burden of rent to be excessive, he could resort to Revenue Courts. Revenue officers would then revise the rent at such a level that it was no more than $\frac{1}{4}$ to $\frac{1}{6}$ of the value of the gross produce of the farms. There were, however, several exceptions. To illustrate, until recently, the State of Tamil Nadu permitted the landlord's share in the produce to be as high as 60 per cent while the tenant cultivator only got the remaining 40 per cent. This was revised later, but even in the revised set-up, tenants continued to pay 25 per cent to 40 per cent of the

produce as rent depending upon whether the landowner did, or did not, contribute farm capital to the operation of the farm.

Under the celebrated Zamindari Abolition Act of the State of Uttar Pradesh — the first comprehensive reform of its kind in this country — an occupancy tenant (a permanent and hereditary tenant) had two options. He could continue to pay the rent of land but pay it to the Government rather than to the absentee landowner who was, of course, given a compensation in order to forego the ownership of the land. Alternatively, the occupancy tenant, could pay as a lumpsum a value equivalent to 10 times the annual rent or, in instalments, a sum equal to 12 times the annual rent and, thus, acquire the ownership of land. As soon as the payment was completed, the burden of rent was reduced by half; the remaining half was deemed to be land revenue and was received by the State.

In erstwhile States, such as Bombay, Hyderabad and many others, a tenant-cultivator, who had occupied the land for some years and was described as a permanent or a protected tenant , could venture, within prescribed limits, to buy up land from his landlord by paying about 8 to 10 times the annual rent. This multiple of rent actually worked out to be much less than the market value of the land and by buying up land so cheaply, it became possible for the tenant to acquire ownership rights and avoid further rent payment. After the acquisition of ownership right, the new owner did not pay rent but only paid land revenue which was a mere fraction of the old rent. The India Land Reform Movement thus aimed at the abolition of rents altogether in course of time, as tenants acquired full ownership rights or as owners resumed their lands from their tenants, within prescribed limits, for personal cultivation. Thus, there was to be a return to peasant proprietorship and an elimination of the superfluous layers of non-owning, rent-paying cultivators and non-cultivating, rent-collecting, absentee landlords. Only one payment, namely, land revenue -- paid by the owner-cultivator to the Government — was to survive and rent, which was an intermediary payment from the tenant to the landlord was to be abolished.

It is interesting to note, however, that the tenantry in this country did not generally take full advantage of the measures to reduce rents of agricultural lands or of the measures enabling tenant-cultivators to purchase their lands and have rents abolished. Less than 20 per cent of the tenant-cultivators went to the Revenue Courts and pleaded for rent reductions. It was perhaps in the nature of things that owing to the great shortage of land and the increase in land-hunger, the bargaining position of tenants should be compromised seriously. Moreover, in day-to-day life the lot of the tenant is tied with the landlord at many points, and the social relations existing in Indian rural society did not make it easy for tenant to plead openly against their landlords and ask for rent reduction.

Even so, what land reforms could not achieve in a big way in terms of rent reduction, inflation and the growth of productivity between 1951 and 1965 appear to have achieved quite successfully. The point is that rents in Indian agricultural society are fixed in three different ways: rents are settled in terms of so many tonnes of produce per hectare or in terms of so many rupees per hectare or, indeed, as such and such a percentage, say, 30 per cent of the produce. In the first category, the absolute rent which is a given number of tonnes per hectare could not be reduced. But even so, the increase in productivity per hectare made the existing rent a smaller percentage of the increased produce and, thus, reduced rent burdens per hectare. In the second instance, where rents were fixed as so many rupees per hectare, the growth in the productivity per hectare and, more so, the increase in the price of the product, considerably enhanced the value of the product from every hectare of land; and so the given number of rupees fixed as rent came to be a smaller proportion of the value of the produce and constituted a smaller burden. Only in the third category, where rents were fixed as a percentage of the produce, did an increase in the volume and/or the value of the produce result in a simultaneous increase in rents and no alleviation of the rent burden. These are share-crop rents, and it is precisely in this type of rent fixing that the tenantry suffered heavily.

Share-Cropping Rents: The discovery on the part of landowners that the adoption of share-cropping arrangements and fixing rents as a percentage of the produce was an excellent way of dodging many important planks of land reform, appears to have led to an increase in subtle share-cropping arrangements whereby the actual tenant is not formally recognized as tenant but is only deemed to be a farm servant. There is either a servant deed made between him and the landlord or, indeed, there is no deed at all but a mere oral lease. This arrangement at one stroke nullifies all the rights of the tenant—the right to security, the right to have rents reduced and the right to purchase the land of the landowner within specified limits and, thus, save himself from excessive rent payment. From all accounts, the area under this kind of share-cropping tenancy is not only large, but has been on the increase lately. A recent study by Ladejinsky in five districts of India in different States confirms this belief. Ladejinsky finds rent burden among share-cropping tenants in the Tanjore district of Tamil Nadu to be between 60 and 66 per cent in numerous cases. Other districts like West Godavari, Ludhiana and Shahbad are not very different in terms of high rent payment and subtle tenancy arrangements. An offshoot of excessive rents obviously is the reduction in the incentive to cultivate land with improved techniques and with a greater intensity of investment per hectare. Moreover, share-cropping tenants, burdened with excessive rents and with no record of the lease, find it very difficult to

obtain loans from co-operative and other organizations, public and private and at best secure very meagre quantities of credit.

In order to reduce the burden of oppressive and exploitative rents and give to the share-cropping tenants their due rights under tenancy reform, including the right to fair rent, the most important thing is to identify these tenants who are often camouflaged as farm servants. The real test of their identity will be whether in addition to giving their labour they are also contributing working capital or fixed capital to the farm. For, if they are contributing capital and not merely labour, the presumption ought to be that they are, in fact, tenants and not merely wage labourers. In that case, their tenancies should be forthwith recorded, the security of their tenure guaranteed, their rents reduced to a 'fair' level and their right to purchase the lands which they cultivate should be granted. Such an identification of share-cropping tenants is by no means an easy matter, as the approach of each single farm hand has to be individually made. Luckily, the population Census of 1961 included in its schedules questions about people's right to the land they occupy and the area so occupied. It turned out from the census data that about 23 per cent of India's total cultivated land is under one form of tenancy or another. As the land openly declared to be under tenancy cultivation in the village papers and in the Censuses of Land Holdings (conducted in the middle of 1950's) works out to be about 12 per cent, it would appear that the additional 11 per cent or so of land area stated in the population Census of 1961 to be under tenancy arrangements is under concealed share-cropping tenancies. On this additional 11 per cent of area, agricultural rents are obviously very high and several studies are available to show that these rents range between one-half to two-thirds of the value of crops produced.

In order to be able to identify the tenants individually, enter their titles in the Record of Rights in the village and have rents subsequently reduced, it has been suggested that a committee be formed at the village level. This committee might deal with one or a few villages and could consist of representatives of tenants, of landowners and of the tenant-cum-landowner category. It is probably better to add to this group a Government representative, preferably of the Land Revenue Department, inasmuch as the presence of this official might help in the maintenance of the proper perspective and prevent politics from dominating the decisions of the committee. Once a tenant is identified and his rights recorded, rents can be reduced to fair levels — about 1/4th to 1/6th of the value of the produce.

Just as a large percentage of permanent or protected tenants who could have taken advantage of the provision of rent reduction, have not, in fact, taken this advantage, so also the right of the tenants to purchase the land at less than the market price has not been adequately utilized.

This seems surprising at first sight, especially when land is said to be a very crucial asset for which there is great demand both on economic and social grounds and when the abolition of high rents automatically follows as soon as ownership rights are acquired by tenants. On detailed consideration, however, there seems to be some justification for the tenants not taking advantage of the right to purchase. The new ownership which such a purchase will grant is not the same as the old one; that is to say, the new right is hedged with many qualifications insofar as one cannot mortgage or sublease one's land, nor use it for non-agricultural purposes, nor, indeed, add to it easily owing to ceiling limits on future acquisitions. Secondly, even though the new ownership rights can be acquired relatively easily by paying only, say, 10 times the annual rent, it requires the amassing of some capital and one has to go out of one's way to do so. And finally, there is a general feeling among protected and permanent tenants that if the new law has already given security, permanency and hereditary rights, there is no particular reason to acquire formal ownership especially since capital has to be amassed and since existing rent burdens, for one reason or another, have already become tolerably low.

Magnitudes of Agricultural Rents: Thus, on about one-fourth of the agricultural land surface, tenancy cultivation with rent payments seems to continue; of this about half the area would appear to be subject to rather excessive rent payments, ranging anywhere between 40 to 66 per cent of the value of the produce, while the other half, which comprises recorded tenancies, pays relatively low rents which may well be between one-sixth to one-fourth of the value of the produce, in some cases, slightly more.

In order to give an approximate idea of the rents paid for leasing-in agricultural lands in different parts of the country and in different size groups of farms, we produce from the Farm Management Studies conducted by the Ministry of Food and Agriculture, Government of India some data in Table 1 about rents and their relation with the value of output. It is noteworthy that generally rents per acre decrease as the size of holding increases. This suggests -- and there is other evidence too to support this contention that in larger holdings bad land constitutes a greater share. That output per acre declines as holding size increases also suggests the correctness of this hypothesis. Since both rent and gross output decline per acre with an increase in holding size, and decline more or less in the same proportion, rent as a percentage of output has no tendency to increase or decrease with holding size.

But the regional variation in rents per acre and also in rents as a percentage of output are quite remarkable and land reforms do not seem to have brought about much regional equality. In the dry tracts of

erstwhile Bombay, for instance, rents are between Rs. 6 and Rs. 18 per acre and constitute between 10 and 20 per cent of output. But in the wet areas of Andhra Pradesh rents are as high as Rs. 150 to Rs. 210 per acre and amount to as much as 40 to 60 per cent of output. In the two selected districts of erstwhile Madras rents range between 20 and 35 per cent and in the Punjab between 30 and 40 per cent of output.

TABLE I

Rents Per Acre and as Per Cent of Gross Output Per Acre by Size of Farm

State/Size of holdings (in acres)	*Mean size of holding*	*Rent* per acre (in Rs.)*	*Gross output per acre (in Rs.)*	*Rent per acre as per cent of gross output per acre (3 as % of 4)*
Andhra Pradesh				
Below 1.25	0.71	204	473	43.1
1.26 — 2.50	1.82	192	492	43.4
2.51 — 5.00	3.65	175	388	45.1
5.01 — 7.50	6.37	168	295	56.9
7.51 — 10.00	9.06	176	346	50.9
10.01 — 15.00	12.32	169	369	45.8
15.01 — 20.00	16.87	185	418	44.3
Above 20.00	33.06	151	327	46.2
Bombay (Maharashtra)				
Below 5	2.7	18	102	17.6
5 — 10	7.9	11	110	10.0
10 — 15	12.3	12	62	19.4
15 — 20	17.2	13	95	13.7
20 — 25	22.2	8	46	17.4
25 — 30	27.7	7	56	12.5
30 — 50	36.9	7	70	10.0
50 & above	68.2	6	36	16.7
Madras (Tamil Nadu)				
Below 2.5	1.53	50	257	19.5
2.5 — 5.0	3.68	50	222	22.5
5.0 — 7.5	6.03	39	195	20.0
7.5 — 10.0	8.72	43	199	22.5
10.0 — 15.0	12.10	27	121	22.3
15.0 — 20.0	17.40	21	72	29.2
20.0 — 25.0	24.04	30	88	34.1
25.0 & above	38.21	15	76	19.7
Punjab				
Below 5	3.63	73	200	36.5
5 — 10	7.48	67	186	36.0
10 — 20	14.37	59	173	34.1
20 — 50	29.32	55	155	35.5
50 & above	79.75	49	142	34.5

Source: *Studies in the Economics of Farm Management*, Ministry of Food & Agriculture, Government of India.

(*) Estimates of rents are by Dr. C. H. Hanumantha Rao of the Institute of Economic Growth and are based on the *Studies in the Economics of Farm Management* undertaken by the Government of India.

II. Urban Rents

In this section the rents of non-agricultural lands, (generally urban lands) and of buildings, both residential and non-residential, in urban areas are dealt with. Not only the levels of rents and their recent rates of change, but also the factors influencing these levels and rates, the machinery for controlling rents and the degree of success in the operation of this machinery are discussed.

It is important to note that the rent of land, being the price to be paid for the use of land, depends upon the supply of land and its demand, the latter being derived from the use to which land is put. The main use of urban lands, of course, is for building purposes and, therefore, the rents of urban lands must in the ultimate analysis be related to the returns from buildings, whether of a residential or a non-residential character. Thus in large metropolitan centres where the supply of land for building is very limited but the demand for building is extremely heavy, the result is a more intensive use of building, a tendency to increase the number of storeys in each building, and an increase in rent per unit of space. The total rent of the building on any given area of land increases by leaps and bounds and this in turn enhances the rents of lands on which these buildings are constructed. Thus the real explanation of the rents of urban lands is to be sought in the rents of buildings constructed on these lands and hence land rents are seen to be a derived phenomenon.

The crucial factors in recent times which have raised the demand for buildings and hence their rents, as also the rents of urban lands, are the dual phenomena of population growth and urbanization. India's population which used to grow at a rate much less than 1 per cent per annum before 1921, registered between 1921 and 1951 a growth rate of about 1 per cent per annum, thanks to the decline in the death rate consequent upon the control of infectious and contagious diseases and the control of famines, etc. Side by side with this, a colossal process of urbanization manifested itself as a result of many important factors such as industrialization, lack of job opportunities in rural areas, concentration of war-time industries in cities and post-independence migration of displaced persons. This process was at its peak between 1941 and 1951 and the rate of urbanization during this decade had no parallel in the history of this country. The ratio of urban population to total population which was only 13.9 per cent in 1941 increased to 17.3 per cent in 1951, the rate of urbanization (defined as percentage variation in the percentage of urban to total population) working out to be as high as 24.6 per cent. Between 1951 and 1961, the ratio of urban to total population only rose from 17.3 to 18.0 per cent, the rate of urbanization being only 4 per cent compared to 24.6 per cent in the previous decade.

Even so, the increase in urban population in absolute terms was quite alarming, the decennial rate of growth — both from natural sources and from migration from the rural to the urban sector — working out to 41 per cent in 1941-51 and about 35 per cent in 1951-61.

The period from 1941 to the present times has thus seen an unusual growth of towns and cities. Urbanization is caused partly through the emergence of new towns where there were no towns before and partly by the addition to the size of population centres. Thus, villages become small towns, small towns grow into large towns, large towns become cities, cities grow into major cities and these in turn develop into vast metropolitan centres. An increased density of population in urban areas which urbanization brings about, causes the demand for buildings for all purposes to rise sharply in relation to their supply. Rents of buildings are pushed up remarkably in the process and this in turn has its impact on the rents of lands on which buildings are constructed. The saving factor, however, is that additional lands can be converted from agricultural to urban uses and this additional supply tends to keep the prices and the rents of urban land rather lower on the peripheries of the growing towns and cities than in the centres. Were it not for this fact of availability of agricultural lands for urban purposes, urban rents, both of lands and buildings, would have been much higher than what they actually have been.

Even as the rent to be derived from buildings and lands in urban areas grows, the price of buildings and lands, which reflects the capitalized value of rents, grows accordingly. One of the outstanding features of the last decade or so has been an abnormal increase in land values and in the value of buildings.

Phenomenal increases in the rents of urban lands and buildings are bound to cause great hardships, both to tenants who want residential and other accommodation and to many buyers of premises and of land who constantly find the prices of property rising above the limits of their purse. Salary-earners, professional workers and those with relatively fixed incomes, find it increasingly difficult to acquire property while a tight demand situation relative to supplies enables landlords to evict tenants, increase rents and cause serious inconvenience.

Urban Rent Control Machinery: Most State Governments faced with this phenomenon during the Second World War and thereafter, had devised ways and means for rent control. The control mechanism applied generally to rents of buildings in large and medium sized cities, but did not exist, for all practical purposes,in small towns. The most common method applied is that rents prevailing on or around a certain date, for a given living space of a defined quality, are accepted as "fair" rents; and landlords, under control orders, are expected not to raise the

rents of their premises from time to time. The rent control machinery also prevents evictions of tenants except (a) on grounds of non-payment of rent, (b) on grounds of damage or misuse of property, and (c) if the owner of the building wishes to use the building for his own personal requirements (provided there is ample proof that he does not have alternative accommodation and genuinely requires his own building).

By and large, in large cities rent control has been a great boon to millions of tenants, who otherwise would have found the ruling "free" market rents quite intolerable. But rent control cannot be said anywhere in the country to be an unqualified success and has in fact been seriously abused in many cases. Changing tenants, raising rents of new tenants — and indeed of existing ones — under threat of eviction, acquiring the possession of buildings on the plea of personal use and letting them out after a while to other tenants at higher rents, demanding a special payment called a *pagri*, which is the price for vacating an occupier and admitting a new occupier in the premises are fairly well-known abuses in cities like Bombay, Calcutta, Delhi and Hyderabad and indeed in smaller cities and towns. Even when the rent control order is enforced rigorously, new and subtle ways of dodging the control are discovered. While the rent for the building might formally be stated in the lease deed to be a controlled rent quite acceptable to law, additional rent is charged on the grounds that the premises are furnished or certain items of equipment are provided. This, in the majority of cases, is just a method of charging extraordinarily high rents by showing the value of furniture and equipment etc., to be much higher than it actually is. Not only do rent increases occur owing to excessive demands by the landlords in many surreptitious ways but many a tenant, finding himself in a pitifully weak bargaining position and faced with an absolutely impossible situation regarding accommodation, readily accepts rent increases, and so the process continues.

In certain cities like Delhi, after 1947, accommodation was in extremely short supply compared to the demand which got augmented owing to extraordinary factors, such as the partition of the country and the tremendous influx of displaced persons. It was argued that in order to boost up the rate of house construction, rent controls should not be introduced; for that might dampen the initiative to construct more buildings at a rapid pace. This near-absence of control no doubt resulted in a rapid expansion but also brought in its train great hardship to middle and lower-middle classes who had to cut down on many essentials of life in order to provide for rent.

Pagri: That rents of urban buildings in large cities are not allowed by law to increase, has led to the emergence of many alternative modes bypassing legislation. Some of these modes have already been mentioned.

One of the most prominent devices in large cities has been the *pagri* system. When, for somewhat compelling reason of his own, the tenant has to leave a building,the landlord takes advantage of the opportunity of obtaining a substantial sum called *pagri* to do the favour of letting the building out to the new tenant. More often than not, the out-going tenant himself demands the *pagri* before leaving the building and handing it over to the landlord or to the next tenant whom the landlord would like to accommodate. There is another reason for charging a *pagri*. While accommodating a new tenant the landlord might want to charge him a rent much higher than the controlled rent — that is a rent which the market can bear. The new tenant may cleverly agree to pay high rent and may subsequently go to the rent controller and have his rent reduced to the controlled level. To safeguard against such a contingency, landlords collect an advance payment which is *pagri*. In theory, *pagri* is nothing but the capitalized value of the difference, wholly or in part, between controlled rent and the uncontrolled, free-market rent which equates the demand for buildings with the limited supply. In actual reality, however, there are many factors which do not make this logic come entirely true. The important point, however, is that *pagri* exists and those who wish to acquire control of the premises—whether they be owners who want to get accommodation for their own living or for subsequent leasing or whether they are new tenants — have to pay a rather forbidding sum which taxes their capacities unduly and, in fact, in numerous cases, prevents people from shifting from their present unwholesome apartments to other better ones.

The *pagri* system has been known to exist in the metropolitan cities of Calcutta and Bombay for many years. It did not exist in Delhi, Madras or Hyderabad, but has been emerging quite rapidly in these, and some other urban, concentrations. As many a desperate tenant in search of accommodation is willing to pay either advance *pagri* or advance rent for several months or even years, it has become possible for many a landlords to construct whole buildings with these advance payments.

Levels of Rent and Other Details in Selected Cities: Appendix I gives some details about house rents from socio-economic surveys and other studies undertaken in the cities of Bombay, Calcutta and Lucknow. These details, which are illustrative rather than exhaustive, indicate the levels of rents for premises of different types and for different magnitudes of floor space, percentages of occupants in different rent brackets and the relation between rents and incomes.

B. WAGES

I. Industrial Wages

Wage being the reward for labour depends, like the reward for any

other input, on its supply in relation to demand. Indeed, the wage rates of any specific category of labour — skilled, semi-skilled, unskilled, etc. — is seen to depend on the supply of and the demand for that category of labour. Factors on the supply side comprehend such matters as the cost of subsistence or of education and training of workers, the agreeableness or onerousness of work, the desire on the part of the workers to offer their labour in the market and the strength of the working class as determined by their collective bargaining position, etc. Factors on the demand side have obviously to do, among other things, with the demand for the commodity in the production of which the particular variety of labour is involved, and the value of additional product obtained by adding one more unit of labour. Actually, the determination of the wages of any given category of workers, as indeed the determination of the general wage rate,has been the subject of great controversy and has led to the development of alternative theories which vie with one another in explaining such issues as the level of wages, the differentials between the wage level of different categories of workers and the rate of change of wages of one category of workers singly or *vis-a-vis* the wages of other categories.

In what follows in this section will reflect upon the level as well as rate of increase of money wage rates (and wherever possible money earnings) of workers as a whole and some specific categories of workers for which data are available. We also examine the change in some other important variables with which wages must be linked up if a fruitful casual analysis is to be conducted. Periods of economic development are characterized by inflationary tendencies during which both prices and wages move upwards. In such periods, it is essential to know whether wages have been catching up with prices or have been falling behind. To be able to examine this, the rate of increase of money wages or earnings has to be seen in the context of the rate of increase of the general price level, in particular, the price level of working class consumer goods, if an idea of change in the real earnings of labour is to be obtained. Here, not only are the earnings of all workers, but also of particular categories of workers of interest. While some workers may have beaten the price line by having their wages stepped up rather rapidly, others may never have caught up with prices and might have ended up as net losers in the bargain. This may be particularly true of unorganized workers who have no simple mechanism for having their earnings stepped up in line with rising costs of living. It may also be true of salary earners and professional workers whose earnings are generally known to be more sluggish in their upward march, though perhaps sticky in their downward movements. Thus, taking price increases over the period as a norm, one has to compare the relative increase in the wages of important categories of workers for which data are available.

Yet another meaningful comparison is between the rate of increase of wages on the one hand and the rate of increase of earnings of other factors of production such as land, capital and entrepreneurship. Such a comparison obviously reflects upon the relative position of the working class *vis-a-vis*, the owners of property, such as lands and buildings, the owners of other forms of capital and the captains of industry who are the recipients of profits. In a country which has aimed in all its developmental plans at a more and more equitable distribution of the national product between various classes and factors of production and whose policy is consciously geared to an increase in the share of the down-trodden and the weaker sections of the community, particularly wage workers, it is important to ask how the relative share of factors of production, especially the share of labour, has altered.

And finally, there is the major issue of the differentials between the earnings of different classes of workers or workers in different occupations.

Changes in Money Earnings: Table II reveals a comparison between money earnings per factory worker and national income per head at current prices over the decade 1951-1961. It would appear that money earnings per worker had increased roughly from 100 to 138 over the decade, *i.e.* by a little more than 3½ per cent per annum while per capita income in the same period increased from 100 to 122, that is at an average annual simple rate of about 2.2 per cent. Factory workers, therefore, would seem to have improved their money earnings over this decade not merely in absolute terms but also *vis-a-vis* an average member of the Indian society and this is quite understandable in the case of organized workers. What is not so certain is whether unorganized workers in the country, whose earnings cannot rise as rapidly as those of the organized working class, were able to show a gain in one sense or another.

TABLE II

Trends in All-India Average Annual Money Earnings Per Worker and Per Capita National Income

Year	*Average annual money earnings per factory worker* (1951-100)	*Per capita national income at current prices* (1951-52-100)
1952	107	97
1953	108	101
1954	108	91
1955	113	93
1956	115	103
1957	121	102
1958	119	111
1959	122	111
1960	130 (P)	119
1961	138 (P)	122

(P) means 'provisional'

Source: Reserve Bank of India Bulletin, April 1954 p. 425.

Table III gives the average annual money earnings of factory workers (earning less than Rs. 200 per month) between 1947 and 1960, separately for most States of the country and, indeed, for the country as a whole. Similar data for 1961 to 1969 are available in Table IV, but for workers earning less than Rs. 400 per month. These data are seen in Tables V and VI in the form of an index with base as 1951/1961. Annual percentage rates of change in the money earnings of factory workers drawing less than Rs. 200/400 per month have been worked out in Table VII and are seen in columns 3/5. It would appear from this Table that in the years prior to 1961 money earnings in Mysore (Karnataka) and Andhra Pradesh recorded the fastest rate of increase (7.3 and 5.5 per cent per annum respectively) among all States; Madhya Pradesh, Madras (Tamil Nadu), Orissa and West Bengal registered an annual percentage increase between 3 and 5; Bombay (Maharashtra) and Uttar Pradesh between 2 and 3 per cent; while Assam, Bihar, Punjab and Delhi registered figures ranging between zero and 2 per cent per annum. Rajasthan was the only State to register a negative rate, that is, a slight decrease in average annual earnings at a rate of 0.8 per cent.

During the period 1961-69, on the other hand, a remarkable similarity emerges in the rate of growth of money earnings of factory workers, among all the States of the country. The highest rate (for Kerala) and the lowest rate (for Bihar) are as close as 11.38 per cent and 10.46 per cent per annum and all other States cluster between these two figures. The mechanism for collective bargaining through trade unions and allied machinery and the transmission of the demands of organized workers all over the country appears to have acquired extra-ordinary efficacy during this period. Without this hypothesis of quick transmission and standardization in practices for raising and setting wage demands, it is difficult to explain such a remarkably close convergence of the rate of increase of earnings all over the country.

It is also possible to obtain from existing data the average *daily* earnings of factory employees who draw less than Rs. 200/400 per month. Tables VIII and IX give these daily earnings for all the States of the country in each of the years 1956 to 1961 and 1961 to 1968. Concentrating on the year 1961, it turns out that the highest level of daily earnings of factory workers is found in Gujarat (Rs. 5.1), Maharashtra (Rs. 4.9) and Delhi (Rs. 5.0). Bihar, West Bengal, Madras (Tamil Nadu) and Uttar Pradesh show figures ranging between Rs. 4 and Rs. 5, while Andhra Pradesh, Punjab, Mysore (Karnataka), Orissa and Rajasthan record figures ranging between Rs. 3 and Rs. 4. Earnings of factory workers seem to be the lowest in Assam, Himachal Pradesh and Kerala and range between Rs. 2.4 and Rs. 3 per day.

On the other hand, the position in 1968 was as follows:

Maharashtra and Madhya Pradesh recorded the highest average daily earnings of organized factory workers — above Rs. 9 per day and were closely followed by Delhi and Gujarat. At the other extreme, while Tripura recorded an unduly low figure of Rs. 2.73, Jammu and Kashmir, Andhra Pradesh, Rajasthan and Punjab had daily earnings between Rs. 5 and Rs. 6, all other States clustering between Rs. 6 and Rs. 8.

Changes in Real Wages: While the behaviour of money wages and earnings over time and space is interesting in itself, an even more meaningful question is whether organized workers were able to record any improvement in their levels of living in real terms, that is to say, whether an increase in wage rates was higher or lower than the increase in consumer prices.

Table X enables us to compare the changes in the index of money earnings between 1951 and 1960 with changes in all-India consumer price index. If the base of these indices is taken to be 100 in 1951, it turns out that money earnings of factory workers earning less than Rs. 200 per month rose under the impact of the Korean War from 100 in 1951 to 107 in 1952 and stayed more or less at that level for 3 years. This was so in spite of the fact that these were generally years of falling prices and of a general relaxation in the inflationary atmosphere as a result of the end of the Korean episode; and indeed years of a relative abundance of food owing to very good weather conditions and the bumper harvests of 1953-54 and 1954-55. That money earnings did not decline in spite of a decline in consumer prices shows in part the stickness of wages and earnings. The period between 1951 and 1955, therefore, was one of real improvement in the conditions of the organized working classes. The index of their real earnings (col. 4 of Table X) increased from 100 to 123.7. After 1956, the position began to worsen somewhat, for while earnings rose at a somewhat slow pace, all-India consumer prices rose from 91.4 to 118.1, *i.e.* by 29.2 per cent in the course of the Second Five Year Plan. Real earnings, therefore, decreased from123.7 in 1955 to 111.3 in 1960. But even so the level of real earnings in 1960 was 11 per cent higher compared to 1951 and over the whole decade the organized working classes could be said to have improved their position somewhat.

Table XI, however, confirms that real earnings of the working class which, as shown earlier, started decreasing from 1956 onwards, continued to decrease during the 1962-69 period. The index of real earnings (col. 4) stood at 98 in 1969 (base 1961=100) having in fact dipped to lower levels — 95 and 91 in 1966 and 1967 respectively. There is thus some evidence of near-stagnation, in fact a slow worsening of the organized working class position over nearly a decade and a half.

TABLE III

Average Annual Money Earnings of Factory Workers by States

		1947	1948	1949	1950	1951	1952
1.	Andhra Pradesh*	—	—	—	—	—	—
2.	Assam	755.2	795.8	942.8	1,018.6	1,017.9	1,086.5
3.	Bihar	819.8	946.2	983.9	1,059.1	1,240.8	1,413.5
4.	Bombay	977.9	1,141.9	1,201.1	1,170.3	1,270.5	1,338.8
5.	Gujarat	—	—	—	—	—	—
6.	Kerala	—	—	—	—	—	—
7.	Madhya Pradesh	572.3	609.2	841.9	936.8	862.0	876.8
8.	Madras (Tamil Nadu)	560.3	611.8	726.6	591.2	664.9	837.8
9.	Maharashtra	—	—	—	—	—	—
10.	Mysore (Karnataka)	—	—	—	—	—	—
11.	Orissa	493.6	612.6	527.0	680.6	762.4	853.3
12.	Punjab	628.2	675.9	858.7	771.3	756.0	806.4
13.	Rajasthan	—	—	—	—	—	—
14.	Uttar Pradesh	672.8	887.1	993.0	933.0	960.4	1,002.0
15.	West Bengal	567.7	723.9	839.0	877.5	942.3	987.7
16.	Delhi	877 7	1,047.3	1,028.4	1,061.6	1,292.6	1,340.5
17.	Andaman & Nicobar Islands	—	—	—	—	—	—
18.	Tripura	—	—	—	—	—	—
19.	Ajmer	445.3	527.2	552.0	660.0	694.2	702.0
20.	Coorg	407.4	467.9	400.0	251.9	583.3	559.9
	All above States	737.3	883.0	985.8	958.7	1,035.6	1,111.9

Sources: 1. *Indian Labour Statistics* (Labour Bureau), 1959 and 1962.
2. *Indian Labour Year Book* — 1959, 1960, 1961 and 1962.

* Separate figures prior to 1953 are not available as the State was not in existence. Figures for this State upto 1952 are included in those of Madras. The figures shown against Madras from 1953 onwards are, therefore, not strictly comparable to those for earlier years.

** Estimated

*** Provisional.

III

Drawing Less Than Rs. 200 Per Month

1947-1961)

1953	1954	1955	1956	1957	1958	1959	1960	1961***
728.4	664.0	610.4	594.9	1,030.8	708.1	885.1	855.4	1,079.0
1,264.5	1,231.4	1,325.4	1,525.9	1,833.6	1,223.0	1,607.27	1,370.0	1,235.0
1,472.6	1,450.0	1,387.9	1,235.6	1,299.2	1,283.2	1,358.61	1,593.3	1,485.0
1,346.4	1,273.1	1,325.6	1,414.8	1,452.6	1,458 0	1,499.7	—	—
—	—	—	—	—	—	—	1,623.4	1,617.0
—	—	—	735.9	805.0	—	965.2	959.7	1,149.0
939.3	966.5	998.3	982.4	1,138.7	1,217.1	1,211.5	1,211.5**	—
821.9	822.0	1,044.7	950.1	978.9	978.9**	978 9**	978.9**	1,411.0
—	—	—	—	—	—	—	1,620.0	1,606.0
—	—	—	852.2	967.3	1,063.7	1,093.0	1,107.2	1,278.0
873.9	894.9	899.2	948.5	956.8	981.0	1,076.36	1,090.2	1,154.0
890·6	1,047.6	975.7	991.0	955.3	1,212.2	766.2	898 ?	1,110.0
—	—	—	769.6	907.1	944.1	912.3	912.3**	729.0
1,054.0	997.0	999.5	1,014.1	1,077.5	1,103.0	1,134.0	1,153.8	1,213.0
973.0	1,057.4	1,110.6	1,141.7	1,173.6	1,198.9	1,225.9	1,284.7	1,310.0
1,279.6	1,319.50	1,345.3	1,466.9	1,493.4	1,329.7	1,345.4	1,520.9	1,495.0
—	—	—	688.8	657.1	1,017.4	982.5	1,063.8	1,149.0
—	—	—	854.3	933.0	1,147.0	1,345.0	1,345.1	—
605.1	643.6	962.6	—	—	—	—	—	—
513.5	559.4	637.0	—	—	—	—	—	—
1,?11.1	1,111.3	1,173.0	1,186.2	1,233.9	1,284.6	1,309.9	1,342.37	1,408.0

TABLE IV

Average Per Capita Annual Money Earnings of Employees Earning Less Than Rs. 400 Per Month in Man-industries

(in Rupees)

	1961	1962	1963	1964	1965	1966	1967	1968	1969
Andhra Pradesh	1,149	1,152	1,330	1,168	1,209	1,454	1,601	1,830	2,360
Assam	1,599	1,393	1,600	1,631	1,861	2,130	2,097	2,108	2,340
Bihar	1,856	1,748	1,832	1,717	1,890	2,050	2,196	2,429	2,486
Gujarat	1,702	1,764	1,714	1,888	—	2,340	2,663	2,696	2,696
Jammu and Kashmir	—	—	—	782	—	978	1,209	1,532	1,532
Madras (Tamil Nadu)	1,465	1,563	1,583	1,527	—	2,032	2,204	2,346	2,346
Madhya Pradesh	1,816	1,973	1,896	2,009	2,060	1,724	2,009	2,125	2,125
Maharashtra	1,775	1,867	1,920	2,031	—	2,480	2,676	2,876	2,826
Mysore (Karnataka)	1,375	1,284	1,567	1,696	—	1,840	1,785	2,294	2,294
Orissa	1,180	1,336	1,377	--	1,881	2,000	2,325	2,333	2,143
Punjab	1,174	1,258	1,266	1,418	1,642	1,636	1,659	1,670	2,070
Rajasthan	761	1,300	1,334	1,412	—	1,412	1,882	1,853	2,003
Uttar Pradesh	1,264	1,390	1,447	1,552	—	1,826	1,978	2,157	2,200
West Bengal	1,410	1,494	1,578	1,696	1,862	2,024	2,175	2,382	2,644
Haryana	—	—	—	—	—	1,712	2,064	2,219	2,351
Andaman and Nicobar	1,234	1,324	1,346	1,325	1,443	1,621	1,566	1,791	2,024
Delhi	1,655	1,819	1,836	1,961	2,087	2,321	2,499	2,788	3,013
Tripura	—	1,513	1,203	1,622	1,336	1,271	897	1,945	1,945
Himachal Pradesh	1,288	1,491	1,245	1,433	—	2,115	2,950	2,851	2,851
All-States	1,540	1,609	1,661	1,745	1,829	2,112	2,271	2,473	2,564

Source: Indian Labour Statistics, 1967, 1971.

Inflation had taken its full toll and it can be discerned that the unorganized working classes may not have done much better in respect of real wages per worker, whatever other gains they may have obtained.

The improvement noticed in the real wages of the working class in the country as a whole during 1951-61 seems to have been shared by every region of the country.

Table XII reflects upon this. Here is a comparison of changes in money wages per worker with changes in real wages among workers of different States. If 1951 were taken as 100, it would seem that in almost every State the index of wages rose faster than that of consumer prices, leaving the workers everywhere better off in real terms as seen in column 5 of this Table. To illustrate, in the State of Assam, money wages rose between 1951 and 1961 from 100 to 132 while consumer prices, in fact, declined somewhat from 100 to 98, thus making the workers better off in real terms; so much so that the index of real wages rose from 100 to 135 over the decade. Taking yet another illustration, this time from West India, it can be seen that in the State of Bombay, money wages rose over the decade by 32 per cent while consumer prices rose only by 17 per cent, thus resulting in an increase in real wages by about 13 per cent or roughly 1.3 per cent per annum. There is no exception in any of the States to this trend towards improvement in real wages and the level of living judged by these data seems to have gone up everywhere among organized but low-paid working classses. However, it is not established that there was much improvement in the decade 1961-1971 as we shall soon see.

While one must not lay too much stress on State-wise comparisons from the data given in Table XII alone, it can be stated that the fastest increase in real wages per worker was recorded in the State of Orissa (100 to 163 over the decade) and the next fastest increase in Madras (including Andhra Pradesh) (about 50 per cent over a decade). Bihar registered an increase of 39 per cent, Assam of 35 per cent, Punjab of 27 per cent, West Bengal of 19 per cent and Bombay of 13 per cent over the decade.

Wages in Relation to Other Factor Payments: As indicated earlier, the point of interest lies not only in estimating whether or not wage rates rise faster than consumer prices, but also whether they rise more or less fast than the money earnings of other factors of production such as interest on capital, profits of entrepreneurship, rents from property and salaries and earnings of professional workers. Table XIII enables us to reflect, at any rate partially, on this important phenomenon of changes in wages relative to the earnings of other factors of production. It will be seen that if 1952-53 were taken as 100, the average annual money earnings of factory workers drawing less than Rs. 200 per month, rose to

TABLE V

Index Number of Money Earnings of Persons Employed in

(Base:

		1947	1948	1949	1950	1951	1952	1953
1.	Assam	71.2	76.1	91.6	98.4	100.0	109.8	123.0
2.	Bihar	73.7	78.1	81.9	96.8	100.0	118.5	117.9
3.	Bombay	76.6	90.1	96.5	91.3	100.0	104.8	104.9
4.	Madhya Pradesh*	80.3	95.9	99.8	118.9	100.0	95.1	99.8
5.	Madras* (Tamil Nadu)	89.4	98.4	116.2	90.4	100.0	132.1	130.4
6.	Orissa	57.6	77.3	80.2	86.3	100.0	112.4	115.6
7.	Punjab	88.6	96.9	130.7	115.3	100.0	105.3	114.6
8.	Uttar Pradesh	67.8	91.0	102.0	96.0	100.0	103.4	105.9
9.	West Bengal	61.3	77.7	91.8	94.8	100.0	102.5	103.5
10.	Delhi	58.7	71.2	71.2	76.7	100.0	100.0	98.7
11.	Ajmer	61.7	76.9	77.4	93.0	100.0	100.4	82.9
	States submitting returns	71.0	85.0	95.4	93.7	100.0	107.1	107.7

Source: Indian Labour Statistics, 1962.

*Figures for 1958, 1959, and 1960 do not include those from Madras (including Andhra) as the latter are not available and hence are not strictly comparable. Figures for 1959 for Madhya Pradesh have been repeated for 1960, as those for 1960 are not available. If estimated indices for Madras (including Andhra Pradesh) are taken into account, the combined indices for all States submitting returns for 1958, 1959 and 1960 would be 121.4, 124.0 and 132.9.

Factories Earning Less Than Rs. 200 Per Month by States

1951=100)

1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
118.2	137.1	153.2	181.3	142.4	168.7	156.3				
120.0	119.4	104.8	113.2	110.8	120.9	140.0				
99.0	103.4	111.0	111.4	115.4	119.2	130.6				
106.7	102.5	111.0	149.7	129.8	135.0	135.0				
128.4	156.3	137.7	149.0	*—	*—	*—				
106.5	119.3	114.8	122.3	126.1	150.8	156.3				
118.3	125.0	129.7	121.9	153.7	100.4	126.6				
100.1	98.5	101.1	112.7	112.3	115.3	119.3				
111.8	117.1	120.4	122.4	125.1	127.6	133.2				
99.8	102.8	112.2	115.9	106.2	106.5	123.3				
93.6	137.6	—	—	—	—	—				
107.7	113.1	115.4	120.8	118.8*	121.7*	131.4*	137.6	143.1	147.5	153.5

TABLE VI

Index Numbers of Money Earnings Less Than Rs. 400 Per Month in Industries (1961=100)

	1962	1963	1964	1965	1966	1967	1968*	1969*
Andhra Pradesh	103.9	122.3	107.4	109.2	130.6	141.8	154.3	212.9
Assam	85.1	101.6	108.0	125.0	137.6	136.3	136.9	151.7
Bihar	97.0	100.5	92.3	191.5	115.0	122.1	133.9	124.3
Gujarat	104.5	101.9	112.8	—	140.5	162.5	165.1	165.1
Kerala	108.1	107.3	115.9	—	142.3	165.3	174.5	174.5
Madhya Pradesh	108.3	106.0	118.0	112.2	116.7	114.6	145.5	151.4
Madras (Tamil Nadu)	106.6	109 0	101.6	—	138.9	150.6	156.5	156.5
Maharashtra	106.4	109.4	115.8	—	142.5	152.2	156.5	156.5
Mysore (Karnataka)	92.8	110.2	116.5	—	129.8	123.6	156.1	156.1
Orissa	103.0	100.3	—	149.9	158.5	183.4	151.9	174.2
Punjab	110.1	107.5	122.5	140.0	144.5	156.7	151.5	188.5
Rajasthan	171.8	177.8	189.3	—	184.9	228.8	260.7	262.8
Uttar Pradesh	109.3	114.0	121.6	—	142.9	156.4	170.6	175.5
West Bengal	106.0	112.5	120.1	131.6	142.0	154.8	164.9	186.2
Andaman and Nicobar Islands	106.0	111.6	108.8	—	139.2	135.6	143.9	166.2
Delhi	109.9	106.3	114.9	121.5	140.1	150.8	165.5	181.0
Himachal Pradesh	159.2	97.0	105.0	—	150.9	200.9	205.7	205.7
All-States	105.6	108.0	114.1	124.7	139.3	151.3	160.4	166.0

Source: Indian Labour Statistics, 1967, 1971.

*Provisional

TABLE VII

Annual Percentage Rate of Change of Annual Money Earnings of the Factory Workers Drawing Less Than Rs. 200 Per Month

	*Annual percentage rate of change**	*Period*	*Annual percentage rate of change*	*Period*
Andhra Pradesh	+5.5	1953-61	+10.85	1961-69
Assam	+1.3	1953-61	+10.59	,,
Bihar	+0.5	1953-61	+10.46	,,
Maharashtra	+2.5	1953-59	+10.69	,,
Kerala	**—	—	+11.38	,,
Madhya Pradesh	+4.4	1953-60	—	,,
Madras (Tamil Nadu)	+4.4	1953-61	+10.70	,,
Mysore (Karnataka)	+7.3	1956-61	+10.71	,,
Orissa	+3.5	1953-61	+10.90	,,
Punjab	+0.2	,,	+10.65	,,
Rajasthan	—0.8	1956-61	+10.98	,,
Uttar Pradesh	+2.3	1953-61	+10.76	,,
West Bengal	+3.4	,,	+10.80	,,
Delhi	+1.6	,,	+10.77	,,
Gujarat	—	—	+10.72	,,

*Based on regression equation of the type log W=a+bT where W is money earnings and T is years.

**The number of year for which data is available is not sufficient for the purposes of calculation of 'Annual Percentage Rate of Change'.

TABLE VIII

Average Daily Earnings of Factory Employees Drawing Less Than Rs. 200 Per Month

		1956*	1957	1958	1959	1960	1961
1.	Andhra Pradesh	1.88	1.82	1.63*	—	2.90	3.96
2.	Assam	2.77	2.84	3.32	2.73	2.94	2.96
3.	Bihar	3.80	4.07	4.05	4.12	4.31	4.48
4.	Bombay	4.47	4.54	4.66	4.77	—	—
5.	Gujarat	—	—	—	—	5.03	5.11
6.	Kerala	1.84	2.11	—	2.46*	2.65	2.43
7.	Madhya Pradesh	—	—	—	3.64*	—	—
8.	Madras (Tamil Nadu)	2.64	2.61	—	—	—	4.21
9.	Maharashtra	—	—	—	—	5.06	4.92
10.	Mysore (Karnataka)	—	—	—	—	2.60	3.89
11.	Orissa	2.73	2.78	2.94	3.16*	3.15	3.46
12.	Punjab	—	—	—	—	—	3.93
13.	Uttar Pradesh	—	—	3.80	3.63	3.83	4.06
14.	Rajasthan	—	2.72	2.92	2.70	2.81	3.14
15.	West Bengal	—	—	4.21	3.97	4.16	4.35
16.	Andaman and Nicobar Islands	2.26	2.32	3.44	3.23	3.58	3.81
17.	Delhi	4.62	4.89	4.28	4.39	4.80	5.06
18.	Tripura	1.60	1.20	1.88	1.47	1.41	—
19.	Himachal Pradesh	—	—	—	—	—	2.86
		3.61	3.67	4.07*			

— Not available * — Provisional

Based on figures relating to only those States for which figures of average daily earnings are shown above.

Figures relate to re-organized States and include Defence Factories, but exclude Railway Workshops.

Source: Annual Returns under the Payment of Wages Act, 1936 as quoted in Indian Labour Journal.

TABLE IX

Earnings of Factory Employees Earning Less Than Rs. 400 Per Month, 1961-68

	1961	1962	1963	1964	1965	1966	1967	1968
Andhra Pradesh	4.18	3.38	3.77	3.23	3.75	4.22	4.65	5.58
Assam	3.41	3.34	3.68	3.62	4.80	5.61	5.89	6.13
Bihar	5.51	5.38	5.63	5.37	6.28	6.40	6.70	7.61
Gujarat	5.37	5.46	5.34	5.83	6.69	7.41	8.39	8.39
Haryana	—	—	—	—	—	5.92	5.67	7.35
Jammu and Kashmir	—	—	—	3.02	3.14	4.83	5.18	5.29
Kerala	2.89	2.90	3.08	3.15	3.54	6.77	7.68	7.13
Madhya Pradesh	5.45	6.33	5.66	6.43	5.70	8.17	8.87	9.08
Maharashtra	5.41	6.04	6.12	6.43	5.70	8.17	8.87	9.08
Mysore (Karnataka)	4.19	4.24	4.83	6.52	7.29	6.09	5.70	7.30
Orissa	3.57	3.86	3.81	5.31	5.93	5.81	7.01	6.54
Punjab	4.05	4.13	4.06	5.20	5.24	5.31	5.56	5.74
Rajasthan	3.49	4.31	4.09	4.58	5.47	4.14	5.86	5.56
Madras (Tamil Nadu)	4.39	4.87	4.78	4.41	4.91	6.51	7.13	7.41
Uttar Pradesh	4.26	4.56	4.63	4.95	6.40	5.86	6.59	6.96
W. Bengal	4.69	4.79	5.05	4.99	5.55	6.61	7.21	7.69
Andaman and Nicobar	4.09	4.44	4.54	5.54	5.58	5.46	5.26	6.14
Delhi	5.47	5.91	5.61	5.83	7.18	7.76	8.07	8.76
Tripura	1.16	2.03	1.95	2.22	2.15	2.46	2.33	2.73
Himachal Pradesh	2.98	4.60	2.83	4.46	3.29	5.71	7.80	7.60
Goa	—	—	—	—	—	5.99	5.08	6.68
All-States	4.79	5.01	5.11	5.42	6.16	6.70	7.24	7.65

Source: Indian Labour Statistics, September, 1971.

TABLE X

Index Numbers of Real Earnings of Persons Employed In Factories Earning Less Than Rs. 200 Per Month

(1951-1960) (Base 1951=100)

Year	*Index Number of Money Earnings*	*All-India Consumer Price Index No. (base shifted to 1951=100)*	*Index of Real Earnings Col. 2 X100 / Col. 3*
1947	71.0	82.80	85.8
1948	85.2	92.5	92.1
1949	95.4	95.2	100.3
1950	93.7	95.9	97.8
1951	100.0	100.0	100.0
1952	107.1	98.1	109.2
1953	107.7	101.0	106.6
1954	107.7	96.2	112.0
1955	113.1	91.4	123.7
1956	115.4	100.0	115.4
1957	120.8	105.7	114.3
1958	118.8*	110.5	107.5*
1959	121.7*	115.2	105.6*
1960	131.4*	118.1	111.3*

Source: 'Labour Bureau' as quoted in the Indian Labour Statistics — 1962.

*This excludes figures from erstwhile State of Madras including Andhra Pradesh, and hence these are not strictly comparable with figures for the previous years. If estimated figures for these States are taken into account the indices of money earnings for 1958, 1959 and 1960 would be 121.4, 124.0 and 132.9 respectively and those of real earnings for the three years would be 109.9, 107.6 and 112.5 respectively.

TABLE XI

Index Numbers of Real Earnings of Employees in Manufacturing Industries and Mines

Year	*All India Consumer Price Index No. (base shifted to 1961 = 100)*	*Index No. of money earnings of factory workers*	*Index No. of real earnings of factory workers*
1	2	3	4
1962	103	106	103
1963	106	109	103
1964	121	114	94
1965	132	128	97
1966	146	139	95
1967	166	151	91
1968	171	160*	94*
1969	169	166*	98*

*Provisional

Source: Annual Returns under the Payment of Wages Act, 1936, as quoted in "Indian Labour Statistics", 1971.

TABLE XII

Index Numbers of Money and Real Wages in Major States

(1951 = 100)

State	*Year*	*Money wages per worker*	*Consumer price index*	*Real wages per worker*
1	2	3	4	5
Assam	1952	110	97.3	113.1
	1955	137	80.5	170.2
	1958	142	97.0	146.4
	1959	169	95.9	176.2
	1960	156*	97.6	159.8
	1961	132*	97.9	134.8
Madhya Pradesh	1952	95	96.5	98.4
	1955	103	82.8	124.4
	1958	130	103.5	125.6
	1959	135	108.3	124.7
	1960	N.A.	107.0	N.A.
	1961	N.A.	114.5	N.A.
Orissa	1952	112	85.4	131.1
	1955	119	79.7	149.3
	1958	126	93.9	134.2
	1959	151	94.7	159.5
	1960	157*	100.0	157.0
	1961	170*	104.1	163.3

(To be continued)

TABLE XII (Contd.)

State	*Year*	*Money wages per worker*	*Consumer price index*	*Real wages per worker*
1	2	3	4	5
Uttar Pradesh	1952	103	97.9	105.2
	1955	99	83.0	119.3
	1958	112	104.3	107.4
	1959	115	104.3	107.4
	1960	119*	105.3	113.0
	1961	121*	108.5	111.5
Punjab	1952	105	90.2	116.4
	1955	125	82.4	151.7
	1958	154	94.1	163.7
	1959	100	99.0	101.0
	1960	127*	100.0	127.0
	1961	131*	102.9	127.3
West Bengal	1952	103	96.6	106.6
	1955	117	90.2	129.7
	1958	125	108.8	114.9
	1959	128	107.3	119.3
	1960	133*	113.2	117.5
	1961	134*	112.7	118.9
Bombay	1952	105	97.9	107.3
	1955	103	85.2	120.9
	1958	115	106.5	108.0
	1959	119	115.9	102.7
	1960	131*	117.9	111.1
	1961	132*	117.0	112.8
Bihar	1952	119	94.8	125.5
	1955	119	73.4	162.1
	1958	111	95.5	116.2
	1959	121	93.9	128.9
	1960	125*	93.9	133.1
	1961	132*	95.2	138.7
Madras (including Andhra Pradesh)	1952	132	98.6	133.9
	1955	156	92.9	167.9
	1958	N.A.	117.1	N.A.
	1959	N.A.	124.2	N.A.
	1960	N.A.	130.3	N.A.
	1961	202*	135.1	149.5

*Provisional.

Source: Indian Labour Statistics, 1963 (as given in the Reserve Bank of India Bulletin, April 1964, p. 439).

126.6 by 1961-62, that is to say at an average rate roughly of 3 per cent per annum. As the wholesale price index over the same period had risen by 23 per cent, that is, at an average rate of 2.6 per cent per annum,

the real earnings of workers could have been said to have increased over this period.

The same, however, cannot be said of real earnings of factory workers during the 1960s. Taking 1961-62 as 100 (as in Table XIV) the index of wholesale prices rose to about 180 in 1969-70. But the index of money earnings of factory workers (earning less than Rs. 400 per month) increased only from 100 to 166 in the same period. The organized workers thus did not, on the whole, beat the inflation of prices. However, this statement is more true in the early 1960s than in the later half of that decade. After the outbreak of the wheat revolution around the mid-1960s the price rise came under control until the outbreak of war with Pakistan in 1971. During this interregnum alone did the organized workers manage to get a higher real wage as a class.

But while these results refer to the earnings of organized workers, it may safely be presumed that unorganized workers, who hardly have an institutional mechanism for having their wages stepped up, had a smaller rate of increase of their earnings than 3 per cent per annum. Similarly, the real earnings of salary earners some of whom also do not have an obvious mechanism for wage increases while others have, but are not expected to utilize it fully — as is the case with civil servants and the army or the police force — most certainly rose at less than 3 per cent per annum.

In like manner, judging by columns 6 and 11 of Table XIII and columns 5 and 10 of Table XIV it is possible to say that in comparison with organized wages, interest earnings on Government bonds also rose less fast over these two decades, the crude annual rate of increase of interest being only about 2.27 per cent in the 1950s and about 2.24 per cent in the 1960s. And finally, the price index of variable dividend industrial securities (company shares) which reflects in many senses the fortunes of the business community. including the profitability of enterprises, rose from 100 in 1952-53 to about 193 in 1961-62, that is, a rise of about 10 per cent per annum. In the following 9 years the index with base 1961-62 as 100 remained virtually unchanged in 1970-71.

The period of two decades under consideration, clearly falls into two sub-periods. In the first sub-period upto 1962 profit earnings and rents of urban property rose much faster than the wages of organized workers, a phenomenon which might have been expected in an inflationary period, such as India was going through since 1954. It is also clear that while rentiers and profit earners were easily able to beat the increase of prices and step up their real incomes as well as their money incomes by a big margin, organized workers were only just able to keep pace with the cost of living. But from 1962 onwards when profits begin to stagnate and Government bonds virtually pay negligible returns, the relative earnings of workers increase even though the working class is not able to overcome the rapid rate of price inflation until the beginning of the agricultural

TABLE XIII

Rates of Change in Prices, Wages, Profits and Interest: 1952-64

Year	Prices		Wages			Profits		Interests		
	Wholesale prices		Average annual money earnings of factory workers drawing less than Rs. 200 per month			Prices of variable dividend Industrial securities		Interest rates on 3% conversion loans (1986 or later)		
	Index 1952-53 =100	Percentage change over previous year	Earnings (in Rs)	Index (1952-53* =100)	Percentage over previous year	Index (1952-53) =100)*	Percentage change over previous year	Percent per annum	Index	Percentage change over previous year
1952—53	100.0	—	1,111.9	100.0	—	100.0	—	3.66	100.0	—
1953—54	101.2	+ 1.2	1,111.1	99.9	0.1	120.6	+20.6	3.64	99.5	—0.6
1954—55	89.6	—11.5	1,111.3	99.9	0.0	142.5	+12.2	3.67	100.3	+0.8
1955—56	99.2	+10.7	1,173.5	105.5	+5.6	153.4	+ 7.6	3.74	102.2	+1.9
1956—57	105.1	+ 5.9	1,186.2	106.7	+1.1	152.9	— 0.7	3.99	109.0	+6.7
1957—58	106.1	+ 1.0	1,233.9	111.0	+4.0	126.6	—17.2	4.18	114.2	+4.8
1958—59	112.1	+ 4.6	1,284.6	115.5	+4.1	146.8	+16.0	4.13	112.8	—1.2
1959—60	118.7	+ 5.9	1,309.9	117.8	+2.0	161.7	+10.1	4.05	110.7	—1.9
1960—61	127.5	+ 7.4	1,342.4	120.7	+2.5	182.6	+12.9	4.06	110.9	+0.2
1961—62	122.9	— 3.6	1,408.0	126.6	+4.9	192.7	+ 5.5	4.16	113.7	+2.5
1962—63	127.4	+ 3.7				160.3	—16.8	4.49	122.7	+7.9
1963—64	139.0	— 9.1				167.7	+ 4.6	4.66	127.3	+3.8

Source: 1. Reserve Bank of India Bulletin.

2. Indian Labour Statistics — 1962, issued by the Ministry of Labour and Employment, 1952 has been taken to be 1952-53.

*Figures from 1957-58 to 1959-60 are with base 1952-53=100. Earlier figures (1951-52 & 1952-53: Base 1938 = 100 and 1953-54 to 1956-57, base 1949-50 = 100 have been adjusted to base 1952-53 = 100).

TABLE XIV

Rate of Change in Prices, Wages, Profits and Interest

	Prices (Wholesale)		*Wages*		*Profits*		*Interest*		
	Index (1961-62 =100)	*% change over previous year*	*Annual money earnings of factory workers drawing less than (Rs. 400 per month)*		*Prices of variable dividend industrial securities*		*Interest rate on 3% conversion loans* (1986 or later)		
			Index 1961 =100	*% change over previous month*	*Index* (1961-62 =100)	*% change over previous year*	*% per annum*	*Index*	*% change over previous year*
1961—62	100.0	—	100.0	—	100.0	—	4.16	100.0	—
1962—63	108.0	+ 8.0	106.0	+ 6.0	—	—	4.49	107.9	+ 7.9
1963—64	119.3	+10.5	109.	+ 2.8	81.6	—	4.66	112.0	+.3.8
1964—65	129.1	+ 8.12	114	+ 4.6	75.9	— 7.0	4.80	115.4	+ 3.0
1965—66	144.5	+11.9	128	+12.3	81.1	+ 6.9	5.46	131.2	+13.7
1966—67	166.2	+15.0	139	+ 8.6	77.5	— 4.4	5.57	133.9	+ 2.1
1967—68	165.3	— 0.5	151	+ 8.6	87.9	+13.4	5.45	131.0	— 2.2
1968—69	168.7	+ 2.0	100*	+ 6.0	99.8	+ 9.0	4.99	120.0	— 8.4
1969—70	179.2	+ 6.2	166*	+ 3.7	100.1	+ 4.5	5.00	120.2	— 0.17
1970—71	—	..	—	—	96.0	+ 4.1	5.00	120.2	— 0.0

transformation.

As the most of workers in the society may be taken to be unorganized in the present stage of India's development, it is, perhaps, fair presumption that these unorganized workers, at any rate outside the agricultural sector, were not able to keep their head above the rising tide of prices and suffered some decline in real earnings. At best their purchasing power managed to keep pace with the cost of living and at worst declined "somewhat". This also seems to be the reason why, over the first 15 years of planning, the increase in India's real national income, and more so in per capita real income, has not been either marked or very noticeable. The average rate of increase of per capita real income has been of the order of 1½ per cent per annum. It is worth reflecting upon that not everybody in the society clusters around the average rate of growth, and that the average improvement is made up of a rather spectacular improvement in the fortunes of some and a less than average improvement, or even a decline, in the real standard of living of others. The analysis given above has tended to show that only profit earners and rent earners have experienced a growth of their earnings faster than that of other groups and, indeed, faster than the rate of increase of prices. But rent-earners and profit-earners are too few and the general feeling of prosperity or adversity cannot be the resultant of what happens to their earnings alone. It is the mass of the working class whose real earnings are likely to decide whether the community as a whole feels better off or not. And here we have seen the result that organized wage earners alone have managed to beat the price line to some extent, while the mass of unorganized workers, salary earners and some professionals have either not managed to keep pace with the price increase or have,in fact, fallen behind in the race for higher money and real incomes.

The only other major category of great importance among working classes is that of agricultural workers. The changes in the earnings of this group *vis-a-vis* some other factors have been examined later in this chapter (Section IV),. But it may be mentioned here in passing that there are two categories of workers among agricultural wage earners — those who derive their incomes partly from cultivating the bits of land which they hold either as owners or as tenants; and those who are landless agricultural labourers receiving a wage. It is the first category of workers who also do some cultivation of the soil who could not have suffered much during the inflationary era inasmuch as they obtained a part of their income in the shape of agricultural commodities. The fact that the prices of these commodities were rising nearly all the time did not affect them adversely at all and to the extent they consumed these commodities directly they did not have to buy these in the market at ever-increasing prices. As a matter of fact, the situation affected them favourably, for they sold these commodities at steadily increasing

prices. The decline in the real value of their cash earnings from labour which followed price inflation was partly or wholly off-set through the gain they made as producers of agricultural commodities. It is only in the case of the landless agricultural labourers that the possibility of a decline in real wages over the decade in question cannot be ruled out. It is true that some of them got their wages in kind and, to that extent again, they were cushioned against the impact of inflation. But wages in kind have increasingly lost ground in recent times owing to the rapid process of monetization of the economy that has been in progress. The employers of labour increasingly desire to fix wages in cash rather than in kind as inflation reduces the burden of cash payments. And workers themselves desire cash payments in order to buy urban-industrial goods with cash. Thus cash payments are becoming the rule in a large number of cases and account for a very large part of wages. Inflation did ea. into the value of these cash payments. Insofar as the prices of commodities such as mill cloth and kerosene which agricultural workers purchase with their cash earnings kept on rising all the time and in some parts of the period rose at a rate faster than the prices of agricultural commodities — landless wage workers have lost some ground during the inflationary period. The only way in which inflation could have been prevented from having an adverse effect on landless agricultural cash-wage earners was to have the money wage rate itself stepped up faster than prices. From all accounts, this does not seem to have happened. A comparison of the wage rates in 1950-51 and 1956-57, which emerges from the First and the Second Agricultural Labour Enquiries, in fact, reveals a decline in the money wages of agricultural workers and signifies a deterioration in living standards. This finding, of course, has to be qualified. But more will be said on this in the following section dealing with agricultural wages.

Composition of Earnings: The earnings of workers in India consist of several categories. The basic wage — which may be related to the time on work, or may be a piece wage — is of course, the main component of earnnings and varies between 50 and 90 per cent of total earnings of organized workers Only an occasional instance may be found of the basic wage consisting of less than 50 and 90 per cent or more than 90 per cent of all earnings But in addition to the basic wage, workers receive cash allowances of various sorts which go up to as much as 45 per cent of gross earnings; bonuses which have a range of variation from very small figures to as much as 15 per cent of gross earnings; and finally, certain other concessions whose money value may be negligible in many cases, but in some is found to be as high as 10 per cent of earnings. Table XV and XVI enable us to see for the years 1961 and 1967 not only the proportion which each of these earnings constitutes of the gross

TABLE XV

Average Per Capita Annual Earnings of Employees in Manufacturing Industries Earning Less Than Rs. 200 Per Month

(in Rupees)

	States	Gross Earnings		Basic Wage		Cash Allowance		Bonus		Money value of concessions		Arrears	
1.	Assam	1,234.96	(100.00)	807.91	(65.42)	259.57	(21.02)	68.15	(5.52)	95.52	(7.73)	3.81	(0.31)
2.	Bihar	1,484·96	(100.00)	1,038.28	(69.92)	354.94	(23.90)	73.64	(4.96)	10.06	(0.68)	7.98	(0·54)
3.	Gujarat	1,617.25	(100.00)	879.78	(54.40)	690.67	(42.70)	37.80	(2.34)	1.11	(0.07)	7.89	(0.49)
4.	Kerala	1,148.79	(100.00)	699.76	(60.91)	363.44	(31.64)	81.40	(7.08)	2.28	(0.20)	1.91	(0.17)
5.	Madras (Tamil Nadu)	1,410.68	(100.00)	690.56	(48.95)	605.95	(42.95)	106.30	(7.54)	1.59	(0.11)	6.28	(0.45)
6.	Maharashtra	1,605.80	(100.00)	946.99	(58.97)	601.90	(37.48)	42.99	(2.68)	7.26	(0.45)	6.66	(0.42)
7.	Mysore (Karnataka)	1,278.10	(100.00)	842.47	(65.92)	393.65	(30.82)	30.83	(2.41)	3.37	(0.26)	7.58	(0.59)
8.	Orissa	1,154.23	(100.00)	882.80	(76.48)	196.23	(17.00)	44.27	(3.84)	2.59	(0.22)	28.34	(2.46)
9.	Punjab	1,110.50	(100.00)	1,015.68	(91.46)	71.74	(6.46)	15·57	(1.40)	0.34	(0·03)	7.17	(0.65)
10.	Uttar Pradesh	1,212.83	(100.00)	828.91	(68.35)	361.53	(29.81)	10.80	(0.89)	1.61	(0.13)	9.98	(0.82)
11.	West Bengal	1,309.93	(100.00)	855.79	(65.33)	398.90	(30.45)	38.80	(2.96)	6.60	(0.50)	9.84	(0.75)
12.	Andaman and Nicobar Islands	1,149.26	(100.00)	821.94	(71.52)	288.19	(25.08)	9.81	(0.85)	2.42	(0.21)	26.90	(2.34)
		1,424.77	(100.00)	875.56	(61.45)	489.57	(34.36)	46.32	(3.25)	5.25	(0.37)	8.07	(0.57)

Source: Indian Labour Year Book — 1962

N.B. — Figures in brackets are percentages of gross wage.

TABLE XVI

Percentage Distribution of Per Capita Annual Earnings of Employees Earning Less than Rs. 400 Per Month in Manufacturing Industries by Components during 1967 (Provisional)

	States/Union Territories	*Gross Wages*	*Basic*	*Cash Allowance*	*Money Value of Concessions*	*Bonuses*	*Arrears*
1.	Andhra Pradesh	100.00	70.72	27.06	0.02	1.75	0.45
2.	Assam	100.00	64.19	26.47	5.60	2.34	1.40
3.	Bihar	100.00	68.67	25.27	1.33	4.68	0.50
4.	Gujarat	100.00	43.20	51.38	0.06	4.97	0.39
5.	Haryana	100.00	82.57	13.04	0.30	3.93	0.16
6.	Kerala	100.00	89.00	9.74	—	1.07	0.19
7.	Maharashtra	100.00	50.39	43.96	0.18	5.05	0.42
8.	Madhya Pradesh	100.00	66.26	32.13	0.05	1.14	0.42
9.	Mysore (Karnataka)	100.00	64.69	30.36	0.02	3.65	1.28
10.	Orissa	—	—	—	—	—	—
11.	Punjab	100.00	89.51	8.29	0.07	2.07	0.06
12.	Rajasthan	100.00	75.87	20.27	0.02	3.03	0.81
13.	Madras (Tamil Nadu)	100.00	48.85	43.91	0.29	6.71	0.24
14.	Uttar Pradesh	100.00	61.80	35.73	0.57	1.50	0.40
15.	West Bengal	100.00	59.23	36.68	0.35	3.34	0.40
16.	Delhi	100.00	66.73	29.92	0.07	2.99	0.29
17.	Goa	100.00	56.73	11.53	0.04	1.40	0.30
18.	Andaman and Nicobar Islands	100.00	60.68	38.79	0.10	0.28	0.15
	All States/Union Territories	100.00	57.22	37.91	0.32	4.13	0.42

Source: Indian Labour Year Book — 1968

earnings at the all-India level but also the State-wise differences in these proportions. It is clear that in 1961, the per capita yearly earnings of the lowest-paid categories of employees in manufacturing industries was Rs. 1,425 on the average. Moreover, the manufacturing workers being an organized category, with trade union contacts between one region and another and with labour laws and wages regulations cutting across State boundaries, the range of variation in their per capita earnings does not seem to be very large. If the lowest figure for per capita earnings of an average worker in the factory establishments was Rs. 1,111 (in Punjab), the highest figures (for Gujarat and Maharashtra respectively) were Rs. 1,617 and Rs. 1,605, that is to say, less than 50 per cent higher than the lowest figures, all other States showing figures within this range. If the average per capita earnings of an employee in the manufacturing establishments was 100 at the all-India level, the basic wage constituted a little over 61 per cent, cash allowances a little more than 34 per cent, bonuses a little more than 3 per cent, payment of arrears about 8 per cent and money value of concessions less than half of 1 per cent of all gross earnings. In 1961, the variation in the percentage which basic wage constituted of gross earnings is found from Table XV to be between 49 per cent for Madras (Tamil Nadu) and 91 per cent for Punjab. In 1967, this variation is seen from Table XVI to be between 43 per cent for Gujarat and 90 per cent for Punjab. But in general, the basic wage is quite close in all States to the all-India average. As for bonuses, Uttar Pradesh seems to be the only State with bonuses amounting to less than 1 per cent of gross earnings in 1961 and less than 2 per cent in 1967. Punjab and Haryana, too, have a small figure between 1 and 2 per cent. All other States have bonuses generally amounting to between 2 and 7½ per cent, the States with highest bonuses in relation to earnings being Madras (Tamil Nadu) and Kerala in 1961 and Tamil Nadu and Maharashtra in 1967. Cash allowances of various sorts are the lowest for Punjab, being about 6½ per cent of all earnings in 1961 but in general range between 20 and 40 per cent of earnings, only Madras (Tamil Nadu) and Gujarat showing figures around 43 per cent. In 1967 Assam alone shows substantial (5.6 per cent) cash concessions, all other States having figures of around or below one per cent.

While we need not be get involved here in a detailed discussion of the levels and the rates of change of earnings of various categories of workers, such as those in coal mines, other mines, plantations, etc , we give in the Appendix II (Tables A, B, C, D and E) further details about these levels and rates of change over time for different sub-categories of workers.

Occupational Differences in Wages: One crucial dimension of the wages of working classes ought to be highlighted. A very important way of

looking at wage rates is to differentiate between wages of workers in different occupations. In a developed society, thanks to communications, trade union organizations, Government policies and demonstration effects, wage rates in different occupations for workers with similar skills or onerouseness of work tend to become equal. Other things being equal, wages also have a tendency to equate themselves with the marginal productivity of labour in different industries subject, of course, to some very important qualifications.

Tables F and G of the Appendix II give some details of the wages in different occupations and the variations in those rates over time and among different States. Table XVII gives the average annual earnings in various occupations for the year 1950-51, both in terms of rupees and as a percentage of net output per occupied person. This would seem to be an interesting way of looking at earnings. It turns out that if the net output per occupied person in 1950-51 amounted to Rs. 665 at current prices, the annual wages of agricultural workers were no more than Rs. 306 on the average, while the annual earnings of rural skilled labourers were at least double that level, *mochis* and cobblers showing an average earning of Rs. 596, blacksmiths of Rs. 722 and carpenters of Rs. 765. Mine workers came out slightly worse off, coal miners receiving an average annual earning of Rs. 364 and those in non-coal mines getting Rs. 522. School teachers were no better paid than skilled labourers, such as carpenters and blacksmiths had showed an annual earnings of Rs. 769 on the average. Industrial workers (drawing less than Rs. 200 per month), in fact, turned out to be the best paid category, their average earnings being Rs. 967 per annum. It is clear that if the net output per occupied person in the country as a whole were taken to be 100, the earnings of industrial workers were almost 1½ times that level, those of teachers and rural skilled labourers only slightly more than the output per person, while mine labourers showed earnings between 75 per cent and 96 per cent and agricultural labourers only 46 per cent of net output per occupied person.

TABLE XVII

Average Annual Earnings In Various Occupations

(1950-51)

S. No.	*Occupation*	*Annual earnings* (Rs.)	*Per cent of net output per occupied person*
I.	**Agricultural wage rate**		
1.	**Field labour**	**300**	**45.1**
2.	**Other agricultural labour**	**306**	**46.0**
3.	**Agricultural operations**	**302**	**45.4**

TABLE XVII (Contd.)

S. N.	Occupation	Annual earnings (Rs.)	Per cent of net output per occupied person
II.	**Rural skilled labourers***		
	4. Carpenters	765	115.0
	5. Blacksmiths	722	108.6
	6. *Mochis*	596	89.6
III.	**Mining labourers***		
	7. Coal	634	95.3
	8. Non-coal	522**	78.5
IV.	**Others**		
	9. Industrial workers (drawing less than Rs. 200 per month)	967**	145.4
	10. Teachers	769	115.6
	11. Net output per occupied person	665	100.0

*Annual earnings have been obtained from daily earnings as available in the sources.
**Figures relate to the year 1951.

Sources: (1) Sl. Nos. 1 to 8: "*Agricultural Wages in India*", Ministry of Food & Agriculture.
(2) Sl. Nos. 9 to 12: "*Statistical Abstract*", 1959-60 C.S.O.
(3) Sl. No. 13: "*Education in India*" Ministry of Education.

TABLE XVIII

Average Annual Earnings in Various Occupations

(1961-70) Rs.

S. No.	Occupation	Annual earnings		
I.	**Rural Skilled Labourer*** (December 1969) :	Hyderabad	Gujarat	Himachal Pradesh
	(1) Carpenters	1,500	1,650	1,800
	(2) Blacksmiths	1,500	1,500	1,800
	(3) Cobblers	1,050	1,200	1,800
II.	**Employees in Manufacturing Industries** (earning less than Rs. 400 per month)	Public Sector	Private Sector	All India
	1966	2,437	2,334	2,122
	1970	3,068	2,560	2,564 (for 1969)
III.	**Workers in Mines***	Coal Mines	Non-coal Mines	
			Mica (Bihar)	Manganese (M.P.)
	1961	1,178	834	963
	1965	1,559	732	936
	1970	2,709	831	921
IV.	**Teachers**	Higher Secondary Schools	Middle Schools	Primary Schools
	1950-51	1,258	682	493.20
	1960-61	1,681	1,058	872.80
	1964 65	1,998	1,459	906.70

*Calculated from daily earnings on assumption of 300 working days per year.

Sources: (1) *Indian Labour Statistics*, C.S.O., 1972
(2) *Agricultural Situation*, April/May, 1970
(3) *Education in India*, Vol. I., 1964-65.

The rates of change in the earnings of various occupations at current prices between 1950-51 (equals 100) and 1960-61 are seen in Table XIX. While net output per occupied person rose from 100 to 126.8, factory employees had their earnings stepped up by 44 per cent, mine workers by 100 per cent, railway workers by 37 per cent, Central Government employees, including railways, by 27 per cent, plantation workers by more than 45 per cent and rural skilled workers by about 23 per cent.

Two interesting relationships emerging from Table XIX are noteworthy. The higher the level of earnings of any category of workers, the less rapid has been the rate of increase of its earnings over time. Central Government servants, including railway workers, had the highest level of average earnings (Rs. 1,692 per annum) in 1960-61. It is precisely in their case that the rate of increase of earnings over a decade is the slowest (27%). Railway workers have a level of earnings of Rs. 1,624 per annum and the rate of increase (37%) over the decade in their case is somewhat higher. Factory employees have a level of earnings (Rs. 1,376 per annum) lesser than railway workers and Central Government employees and the rate of increase in their case has been as high as 44 per cent over 10 years. Mine workers have earnings even lower than those of factory employees and the rate of increase in their case is nearly 100 per cent over 10 years. Thus, by and large, the tendency for workers with higher levels of earnings to show a slower rate of increase and those with lower level to show a faster increase results in a process of levelling up of the weaker sections of the society and tends to bring about equality among earnings of different occupations.

As distinct from this remarkable tendency, the other noteworthy feature of Table XIX is that plantation workers and rural workers despite very low levels of earnings, have not been able to show faster rates of increase over time and this is more true of rural workers than of plantation workers. Thus, there is a tendency for disparities between rural workers and others to grow, while there is the opposite tendency for disparity within the non-agricultural categories of workers to diminish.

Wage Policy: As employers are not always conscious of even the irreduceable minimum requirements of wage earners and often take refuge behind the argument of lack of capacity on the part of the enterprise to pay a decent wage, it has become necessary to make and implement a wage policy. Despite unfavourable wage conditions, the Government of India and the State Governments have been conscious of the need for a wage policy which prevents unduly low rates of remuneration and bad working conditions in sweated industries. The concepts of minimum wage, fair wage and living wage have been invoked from time to time and the contents of these concepts have been spelled out on numerous occasions. The Payment of Wages Act was passed

TABLE XIX

Index Numbers of Earnings by Occupations at Current Prices (1950-51-100)

Sl. No.	Year	Factory employees drawing upto Rs. 200 p.m.	Mines			Railways	Central Govt. including railways	Plantation Assam Valley 2 (men only)	Rural skilled worker	Agr. labour (men only)	Net out-put occupied person
			Coal	Non-coal	All						
1	1951-52	108.0	104.3	108.0	105.4	106.9	103.7	—	106.9	—	103.1
2	1952-53	116.0	112.0	110.0	111.4	109.0	104.4	—	107.1	—	100.0
3	1953-54	115.9	112.1	109.7	111.3	110.9	108.2	100.0	104.5	—	105.0
4	1954-55	115.9	114.4	111 3	113.4	117.7	108.2	115.9	103.2	—	94.9
5	1955-56	122.4	117.0	113.3	115.8	113.5	108.1	131.2	108.1	85.1	97.0
6	1956-57	123.8	165.5	119.5	151.3	116.2	108.9	135.0	109.7	89.8	108.1
7	1957-58	128.7	186.5	128.0	168.5	122.7	113.7	140.1	114.5	93.7	107.2
8	1958-59	130.5	202.5	130.6	179.8	125.7	116.0	129.3	117.7	—	116.7
9	1959-60	134.8	219.3	134.0	192.9	128.2	120.2	141.3	123.0	—	117.9
10	1960-61	143.5	224.1	144.9	199.7	137.0	126.9	144.5	—	—	126.8
11	Average earningsRs.	1376.0	—	—	—	1624.0	1692.0	609	—	—	843.0

1 In 1960-61 or the latest available year.

2 Index with 1953-54=100

Source : (1) *Digest of Indian Labour Statistics*, 1960; *Indian Labour Year Books*; and *Indian Journal*, Min. of Labour and Employment.

(2) Reports of the Chief Inspector of Mines in India.

(3) Reports of the Railway Board, volumes I and II

(4) Report on Census of Central Government employees, C.S.O. and D.G.E.T.

(5) *Agricultural Wages in India*, Ministry of Food and Agriculture

(6) *Education in India*, Ministry of Education.

(7) Monthly Abstracts of Statistics and unpublished compations by C.S.O.

Scattered information is similarly available for the period 1961-70 from various sources. Some of it is presented in Table XVIII and is suggestive of differences in earnings of different occupations and sectors.

in 1936 and attempted to guarantee that wages will be paid at an interval not exceeding one month; that they will be paid not later than the 7th day of the month; and that no deductions will be made from wages except those authorized by the Act, such as a deduction for fines for notified act of omission, for absence from duty, for actual loss or damage to goods, for house accommodation and other amenities provided as a term of employment and for recovery of advances or adjustment of over-paid wages. The Labour Investigation Committee in 1944, the Industrial Disputes Act of 1947, the Tripartite Committee on Fair Wages of 1948 and the Minimum Wage Act of the same year are some of the landmarks in the evolution of a decent wage policy. Several State Governments have also appointed from time to time, inquiry committees and Wage Boards whose work has brought substantial benefits to the working classes. The scope of the Minimum Wages Act has been extended to more and more sweated industries, beginning with industries like *shawl* weaving, rice, flour or *dal* mills, tobacco manufacturing, plantations, stone breaking, tenancies, etc. Minimum time rates, piece rates and overtime rates for different occupations, localities or classes of work have been fixed from time to time. It has been provided that workers may either receive a basic wage and cost of living allowance, or, a basic wage with or without cost of living allowances and the cash value of concessions in respect of essential commodities supplied at concessional rates, or, indeed, a wage rate which includes all these. In all the various committees, sub-committees, advisory boards, etc., appointed by various Governments from time to time, it has become customary to have representatives of the employees, the employers and the Government. While all these are positive steps, uniformity in the standards of minimum wage fixing or, for that matter, in other aspects of wages has not emerged to the desirable extent in the different regions of the country. Different principles with emphasis on different aspects continue to be the cause of a bewildering variety of wage rates. Nevertheless, within a State, and quite often over different States, assemblance of uniformity has been slowly emerging in wages for comparable occupations, intensities of work, skills, etc. The awards given by the Labour Courts, Industrial Tribunals and Conciliation Courts have no doubt helped the healthy tendency towards standardizing wage rates and ensuring equal pay for equal and similar work.

II. Agricultural Wages

The mode of determination of agricultural wages, their levels and the rates of increase are obviously very different from those of industrial wages. This is so owing to several peculiarities of agricultural wage-labour in the context of an under-developed country with a seriously adverse land-man ratio. In India, the rapid growth of population

between 1921 and 1951 at an annual rate of about 1 per cent per annum and an even more rapid rate of increase at about 2.2 per cent per annum since 1951 has increased the pressure of population on agricultural land which has not been expanding by any significant extent. If only opportunities for the absorption of agricultural workers in non-agricultural operations were abundant, a reduction in the ratio of man-power to land or a slower rate of increase in this ratio could have made things a little more manageable. However, while job-opportunities in the non-agricultural sector have been emerging by the millions in every Five-Year Plan period — they are emerging much too slowly and are being filled by the existing supply of workers from the categories of unemployed and under-employed within non-agriculture, from increased labour participation, and finally, from the natural growth of the non-agricultural population. The agricultural labour force, itself growing at a rapid rate of more than 2 per cent per annum, has not been finding enough opportunities to get absorbed fully. Even before the era of planning such was the great mass of labour force and of population dependent on agriculture that not only was per capita income or output small but a serious degree of under-employment — both seasonal and all the year round — was in evidence. It has been argued that under these circumstances of surplus labour force and under-employment, the marginal productivity of labour tends to approach zero or may even become negative in extreme cases. That is to say, many a farm has workers who may not be adding anything to the total product. If these workers were withdrawn from the farms where they worked in too much of a cluster, the output of the farms would not diminish. As output would not diminish, the presumption is that the workers who were withdrawn were under-employed, although if they were asked whether they were doing any productive job, their answer would probably be that, in fact, they were. It follows that one of the peculiarities of under-developed and over-populated agriculture is that judging by the subjective feelings of workers, these workers are employed, but that, judging by the objective test of whether they are really essential to the work and are adding to the total product, many of them will be found to be redundant.

This situation of serious labour surplus in the agricultural sector all over the country, barring perhaps a few pockets of labour shortage, existed even before the era of planning began in 1951. Recent indicators show quite convincingly that things might have even worsened somewhat over the last 15 years. It is true that gross acreage under cultivation has increased by about 20 per cent since 1951 (including irrigated acreage). A greater intensity of cropping and the adoption of techniques which utilize more labour has also been in evidence. Even so, the demand for agricultural labour cannot be said to have

kept pace with the supplies from natural increases of labour force and indeed from the increased desire for participation in work, particularly among women. One may, therefore, presume that the degree of under-employment, in all probability, has increased somewhat in the agricultural sector particularly because major possibilities of shifts of agricultural workers into non-agricultural occupations have not yet emerged, although they might emerge in the near future in a big way. Even before 1951 there was a great deal of under-employment of agricultural labour. But suppose that we assume that there was no backlog of unemployed labour; even then it follows that the 4 million or so jobs created during the First Five Year Plan did not absorb all those who came additionally to the labour market to seek jobs. In like manner, while the Second Five Year Plan created about 7 million additional jobs, job-seekers during that period probably increased by 12 to 14 million. In both Plans, then, fresh under-employment among agricultural workers emerged in the economy. The Third Five Year Plan aimed at creating about 12 million jobs, but by all accounts, there was an under-fulfilment of targets in this respect as in some other fields. The number of job-seekers on the other hand continued to increase phenomenally at a faster rate so that. the Fourth Five Year Plan is estimated to begin with a backlog of 12 million under-employed or unemployed workers and will add some 23 million more to the labour force. Of these 35 million, it can hope to absorb only about 16 million additional workers in the non-agricultural and about 5 million in the agricultural sector, so that Fifth Plan might begin with a backlog of some 14 million unemployed or under-employed. Under these circumstances, when millions of new jobs created in non-agricultural sector are not found sufficient to absorb fully the new job-seekers within the non-agricultural to the non-agricultural sector remains an academic one, for some time to come. One is, therefore, strengthened in the belief that agricultural under-employment has been growing nearly all the time during the era of planning, despite the creation of millions of job-opportunities in the non-agricultural sector and despite increased demand for labour in the agricultural sector.

In this set-up it was but natural that wage rates in agriculture should not rise or rise much too slowly. And this is precisely what seem to have happened. We have already seen in the previous sections that the rate of increase in the wages of rural skilled workers between 1951 and 1961, has been far slower (a little more than 23 per cent) compared to the rates of increase of other workers (railway workers about 37 per cent; factory workers about 44 per cent; mine workers about 100 per cent and plantation workers about 45 per cent). Apart from the *rate* of increase, the absolute *level* of earnings of rural workers, even of the skilled category, is seen to be much lower than in the case of other categories (see Table

XVII); and this too is obviously the result of the supply of agricultural labour being much larger relative to demand than in the case of other workers. As a result of these factors the relative position of agricultural workers *vis-a-vis* other workers has been deteriorating, the only exception to this statement being those agricultural workers who also own lands and cultivate these. As part of their earnings are non-wage earnings and come from the cultivation of land — a business whose fortunes have not behaved badly since the beginning of the Second World War — these land-owning workers have probably not lost very much in the bargain and might have even gained grounds. It is the landless agricultural workers who emerge as the worst hit amongst almost all recipients of wages.

The Agricultural Labour Enquiries: The First Agricultural Labour Enquiry was conducted by the Government of India in 1950-51 and the Second Agricultural Labour Enquiry in 1956-57. While a comparison of wages, earnings, employment, etc., of agricultural workers between these two years is not very easy to make in view of changes in definitions and procedures between the two enquiries, a fairly clear picture of the relative position of agricultural workers is available separately for each of the two years for different operations and indeed in different areas of the country. Table XX gives the average daily wage of casual agricultural labourers in 1956-57, both for men and women, working in different operations and in different regions of the country. The daily wage for men in non-agricultural rural occupations was 167 *paise* and this compared with an agricultural wage of 96 *paise*. Operation-wise, while ploughing fetched a daily wage of 100 *paise*, transplanting fetched 111 *paise*, harvesting 93 *paise* and weeding 88 *paise*. In the case of females, non-agricultural operations fetched a higher wage — 62 *paise* per day — compared to the agricultural wage of 59 *paise* per day. Sowing for women appeared to be the most remunerative of operations, fetching 82 *paise* daily; transplanting was the next best, fetching 69 *paise*, while harvesting and weeding brought 58 and 52 *paise* per day respectively.

For males as well as for females, agricultural wages turned out to be the highest in Punjab, the average daily wage in 1964-65 for men being 198 *paise* and for women 122 *paise*. Assam, West Bengal and Kerala also recorded generally higher daily wage rates for men compared to other States while Madhya Pradesh and Orissa recorded the lowest figures (76 and 80 *paise* respectively).

As stated already, a comparison of wages between the First and the Second Labour Enquiry, that is to say, between 1950-51 and 1956-57 is made extremely difficult owing to changes in definitions and procedures. If one were to go by simple incorrected results, it would appear that the average daily wage rate of casual male agricultural labourers

TABLE XX

Average of Daily Wage of Casual Agricultural Labour During 1956-57

S. No.	State and Zonal Council	AVERAGE DAILY WAGE (in paise)											
		Agricultural Operations (Men)						Agricultural Operations (Women)					
		Ploughing	Weeding	Transplanting	Harvesting	All Agri. operations	Non-agri. operations	Sowing	Weeding	Transplanting	Harvesting	All Agri. operations	Non-agri. operations
	Central Zone	89	69	104	94	86	96	63	54	72	64	61	58
1.	Uttar Pradesh	94	76	106	97	92	99	51	53	74	67	65	59
2.	Madhya Pradesh	80	58	68	89	76	90	77	55	68	62	59	57
	Eastern Zone	104	110	123	103	106	116	101	64	85	70	74	71
3.	Bihar	94	89	101	92	91	115	87	61	85	73	74	72
4.	West Bengal	143	141	160	135	143	127	115	114	116	68	98	90
5.	Orissa	63	79	87	81	80	90	60	56	56	58	55	57
6.	Assam*	168	144	157	146	154	168	107	107	154	99	115	101
	Southern Zone	97	74	91	83	91	98	74	48	59	54	54	59
7.	Andhra Pradesh	90	82	91	81	87	97	81	50	54	56	55	67
8.	Madras (Tamil Nadu)	91	61	92	81	84	91	61	45	53	49	48	48
9.	Kerala	130	—	78	132	128	136	108	57	59	72	70	58
	Western Zone	94	76	111	84	86	103	62	50	93	53	55	60
10.	Bombay	97	79	112	87	87	99	56	51	96	54	55	59
11.	Mysore (Karnataka)	88	66	108	77	84	112	66	47	87	53	55	59
	Northern Zone	182	134	133	202	163	133	38	67	68	105	79	52
12.	Rajasthan	108	83	100	110	98	125	38	65	35	67	61	60
13.	Punjab*	208	173	134	247	198	138	—	194	100	140	122	40
	All-India	100	88	111	93	96	107	82	52	69	58	59	62

Source: Report on the Second Agricultural Labour Enquiry (1956-57) as quoted in *Indian Labour Statistics* — 1962.
*Assam includes Manipur and Tripura and Punjab Includes Delhi and Himachal Pradesh.

declined from 109 *paise* to 96 *paise*, that is, by 12 per cent and for females from 68 *paise* to 59 *paise*, that is, by 14 per cent. As a consequence, the average annual income of agricultural labour households also seems to have decreased from Rs. 497 to Rs 437 and the per head annual income from Rs. 104 to Rs. 99.4. There are other indicators too of a worsening in the position of agricultural workers between the two years under discussion. The proportions of agricultural labour households with land seems to have decreased from 49.9 per cent to 42.9 per cent; average annual consumption expenditure of agricultural labour households appears to have increased from Rs. 461 to Rs. 617, strangely enough without a simultaneous increase in income. In consequence thereof, the percentage of agricultural households in debt seems to have gone up from 45 per cent to 66 per cent, while the accumulated debt per household also seems to have increased from Rs. 47 to Rs. 88.

These results, against a wholesale acceptance of which the reader must be seriously warned, have to be subjected to rigorous scrutiny as, indeed, they have already been in Indian economic literature.* A great deal of analysis has established the point that if corrections were made for definitional and procedural changes between the two Enquiries, the comparative position of agricultural labourers in 1956-57 could not be said to have been any worse than in 1951. The decline in incomes was the result not of changes in the actual reality, but largely of the elimination of households with relatively high incomes which, under the new definition, could not be classified as agricultural labourers. It was also the result, quite substantially, of using the wholesale price index for evaluating the kind incomes of agricultural labourers in 1956-57, when, in fact, the retail price index (which happened to be about 10 per cent higher) was used for a similar evaluation in 1951. It turns out after close examination that the average number of days worked during the year increased for men by 2.6 per cent and for women by 9.2 per cent in agricultural operations. But this increase in employment or the demand for labour could not match the somewhat faster increase in the supply of labour between 1950-51 and 1956-57. In the result, under-employment perhaps increased somewhat and wage rates understandably decreased by 4 per cent for men and by as much as 13 per cent for women between 1950-51 and 1956-57. It is this faster decrease in the wage rates of women that perhaps made it a little more remunerative to employ women in preference to men, wherever such substitution was possible. The net result was, therefore, a greater increase (9.2 per cent) in the average number of days worked during the year by women compared to a smaller increase (2.6 per cent) in the number of days worked by men.

***Agricultural Labour in India*, Ed. V.K.R.V. Rao, a publication of the Institute of Economic Growth, Asia Publishing House, 1962.

The Ministry of Labour has continued to compile statistics of average daily earnings of agricultural labour households on the model of Table XX presented earlier. For the year 1964-65, these statistics are presented here in Table XXI.

Minimum Agricultural Wages: While it has been possible for the Government in this country to devise a machinery for at least a partial control of agricultural rents, urban rents and industrial wages, it has not been found easy, under the prevailing circumstances, to set up an effective mechanism for the fixation of minimum agricultural wages. There are several difficulties of an almost insurmountable character — which stand in the way of an effective minimum wage either in money or in real terms. To begin with, the mass of agricultural labour is phenomenally large, agricultural labour households numbering about 16.3 million in 1956-57 and the population of these households amounting to about 72 million. Within the agricultural labour class, the landless category itself is very large, accounting for no less than 9 million families and about 40 million population. Landless labourers thus constitute about 57 per cent of all agricultural labourers and about one-sixth of agricultural population. This last mentioned figure is quite extraordinary for probably no country in the world has such a large mass of agricultural population deriving its livelihood from wage labour. Even in a thickly populated country like China, agricultural labourers never became so numerous in relation to agricultural population or total population. Apart from the difficulty of numbers, regional disparities in India are so enormous that a minimum wage to cater to the needs of each region is beset with difficulties of its own. The norms for fixing minimum wages for agricultural labourers are not clear. Even in theory while wages of workers in other sectors and lines of industry may have some relation with the marginal product of labour, *i.e.*, the value of additional output due to the employment of one more worker, practically no relation is said to exist between agricultural wage and the marginal product of labour in the agricultural sector. The point typically made in theoretical economic literature is that in agriculture quite often the marginal product is so small (or even negative) that a wage equal to the marginal product will certainly not suffice for the worker and his family to keep body and soul together and would be even below the subsistence level. Wages in agriculture, it is said, are not determined in a country like India with reference to the marginal product, and it seems a better hypothesis to say that agricultural wages are either related very roughly to the subsistence level or are equal to the average farm product, *i.e.*, the total farm output divided by the total number of workers. (We shall presently note some important rebuttals of these statements in the context of the 1960s and the 1970s as distinct from the 1950s).

TABLE XXI

Average Daily Earnings of Agricultural Labour Households 1964-65

Sl. No.		AVERAGE DAILY EARNINGS (in paise)													
		Agricultural Operations (Men)							Agricultural Operations (Women)						
		Ploughing	*Sowing*	*Transplanting*	*Weeding*	*Harvesting*	*All Agri. operations*	*Non-agri. operations*	*Ploughing*	*Sowing*	*Transplanting*	*Weeding*	*Harvesting*	*All agri. operations*	*Non-agri. operations*
I.	**Central Zone**	84	116	160	119	129	110	115	80	90	127	89	97	89	86
	1. Uttar Pradesh	70	124	170	127	148	110	147	85	99	129	97	13	95	80
	2. Madhya Pradesh	105	101	133	92	108	111	128	77	72	124	80	90	86	90
II.	**Eastern Zone**	152	161	197	162	161	155	160	120	115	142	126	118	117	96
	1. Bihar	137	140	186	140	148	139	155	114	124	157	125	125	120	92
	2. West Bengal	184	175	232	177	186	181	167	94	114	177	129	137	136	98
	3. Orissa	137	140	109	145	140	133	152	107	101	78	98	96	89	93
	4. Assam	214	224	450	326	365	221	259	178	—	254	164	—	170	170
	5. Manipur	—	—	—	—	—	—	280	—	233	—	—	—	233	—
	5. Tripura	205	202	199	192	194	197	218	—	100	150	100	150	137	—
III.	**Southern Zone**	147	134	187	113	132	142	170	106	97	97	77	95	90	92
	1. Andhra Pradesh	116	127	156	108	119	121	129	87	108	100	63	91	85	74
	2. Madras (Tamil Nadu)	144	124	281	112	140	139	153	106	80	88	66	91	85	110
	3. Kerala	220	183	183	194	203	211	308	133	170	126	116	137	123	110
IV.	**Western Zone**	140	—	—	144	128	140	177	91	86	115	76	86	86	92
	1. Gujarat	134	180	102	160	130	147	163	98	171	104	138	111	119	130
	2. Maharashtra	149	174	170	166	140	147	201	89	80	107	71	75	77	88
	3. Mysore (Karnataka)	124	121	165	86	105	121	137	90	73	127	60	77	79	88
V.	**Northern Zone**	211	190	215	197	239	204	193	125	110	59	152	136	175	108
	1. Rajasthan	242	189	150	134	171	176	159	119	104	59	139	122	109	147
	2. Punjab	205	189	212	221	266	213	207	151	—	—	266	157	145	97
	3. Jammu and Kashmir	172	—	345	100	226	103	—	—	—	—	—	—	150	—
	4. Delhi	175	216	—	175	—	175	224	160	—	—	175	420	162	150
	5. Himachal Pradesh	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	All-India	139	151	186	142	143	143	154	102	97	115	87	95	95	92

Source: *Indian Labour Statistics*, 1971.

The agricultural wage fixing machinery can, therefore, at best, find it feasible to allow for a minimum subsistence wage which is generally higher than the marginal product of labour. But even a subsistence wage is not an easily definable term, inasmuch as the content of subsistences is too vague and depends a great deal upon personal discretion, subjective feelings and value judgements. Should subsistence include only inferior cereals or superior cereals too? Should children's education, which is deemed to be social necessity and has a constitutional directive to support it, be regarded as an essential part of subsistence? What quality of housing, fuel and clothing should be provided for? There is no one answer to these questions and hence minimum wages are not easy to decide upon.

Arbitrary decisions, however, as in so many other cases, could, of course, be taken; but the real difficulty with a minimum wage programme is the difficulty of enforcement. With a great abundance of the supply of labour in relation to demand, and with supplies growing each year faster than demand, agricultural labourers are in a very weak bargaining position. The landless amongst them have no real asset or property to fall back upon. Competition between them for the relatively few opportunities available is bound to keep their wages and their bargaining position very weak. The availability of other workers and indeed of machines, tractors, etc., as substiutes for labour also works in the same direction, so that there is nothing except the fear of law to enforce minimum agricultural wage. And law, unsupported by other social and economic forces, is indeed not an effective guarantee of enforcement.

The possibility of minimum wage fixing becomes a reality in those regions of the country where the demand for labour begins to catch up with supplies and eliminates the vast labour surplus. This brings about some competition among employers of labour and begins to force them to follow the law or the regulations about minimum wage. For the country as a whole, minimum wage fixing of an effective character will probably have to wait some more time until the pace of industrialization, by absorbing some of the vast labour surplus in the country-side, pushes up wages somewhat, introduces competition among employers and makes it possible to talk of an effective minimum wage.

Important research work in respect of the agricultural sector undertaken in India after the outburst of the wheat revolution in the northern part of the country in the late 1960s suggests a major structural change in the relationship between agricultural wages and productivity. In fact empirical results for the 1950s itself, when better seeds and irrigation had come to be used extensively but the exotic of high yielding varieties with a lot of fertilizer use had not yet emerged, point out to a much greater rationality among farmers than they have so far been credited with. The works of G. R. Saini for the 1950s and of P. S.

Vashishtha * for the 1960s show, farmers do come quite close to a rational allocation of resources. In technical jargon, agricultural labour productivity at the margin is not zero but positive and, what is more the ratio of the marginal products of different inputs correspond quite closely to the ratios of factor costs. All this means that the agricultural scene is rapidly changing and is becoming sensitive to changes in costs, prices and profits. Farming is becoming a business rather than a way of life; and bargaining power is also getting altered radically. Organized trade unions in agriculture — among workers, tenants and small farmers — are a real possibility now and wage fixing in relation to the marginal product of labour is already becoming a reality, as distinct from wage-fixing on the basis of traditional norms or even the average product of labour.

*G.R. Saini: Economics of Farm Management with Special Reference to some Selected Holdings in Uttar Pradesh, Ph. D. Thesis, University of Delhi.

P.S. Vashishtha: Analysis of Agricultural Production Functions., Thesis, University of Delhi.

APPENDIX I

Table 1: Bombay

Tenements by Monthly Rent and Total Floor Space (Sq. Feet)

Monthly Rent in Rupees	Floor Space (Sq. Feet) *Upto* 120	121-200	201-300	301-400	401-500	*Over* 500	*Total*
10 and below	3,351 (66.5)	1,515 (30.0)	135 (2.6)	31 (0.6)	6 (0.10)	3 (0.1)	5,041 (100.0)
11 — 20	1,293 (36.5)	1,711 (48.3)	444 (12.5)	74 (2.0)	14 (0.4)	10 (0.3)	3,546 (100.0)
21 — 30	139 (11.1)	565 (45.0)	378 (30.1)	113 (9.0)	40 (3.2)	20 (1.6)	1,255 (100.0)
31 — 40	43 (6.9)	199 (31.9)	185 (29.7)	99 (15.9)	62 (10.0)	35 (5.0)	623 (100.0)
41 — 50	16 (4.7)	44 (12.8)	111 (32.9)	77 (22.2)	54 (15.7)	40 (11.7)	342 (100.0)
51 — 75	7 (1.8)	56 (14.6)	72 (18.6)	60 (15.2)	82 (20.9)	112 (28.9)	389 (100.0)
76 — 100	3 (1.8)	6 (3.7)	30 (18.5)	24 (14.7)	32 (19·6)	68 (41·7)	163 (100.0)
101 — 150	3 (2.4)	1 (0.8)	14 (11.3)	13 (10.5)	22 (17.7)	71 (57.3)	124 (100.0)
151 — 200	—	2 (5.3)	—	7 (18.4)	2 (5.3)	27 (71.0)	38 (100.0)
201 & above	—	1 (1.9)	1 (1.9)	2 (3.6)	6 (9.3)	45 (83.3)	55 (100.0)
Not or inadequate information	61 (46.9)	41 (31.5)	10 (7.7)	7 (5.4)	7 (5.4)	4 (3.1)	130 (100.0)
Total:	4,916 (42.0)	4,141 (35.4)	1,380 (11.8)	507 (4.3)	327 (2.8)	435 (3.7)	11,706 (100.0)

Source: D. T. Lakdawala, V. N. Kothari, J. C. S. Sandesara and P. R. Nair — *Work, Wages and Well-being in an Indian Metropolis* — Economic Survey of Bombay City — University of Bombay, Chapter IX, page 750.

Note: 1 — Figures in brackets are percentages of the total.
2 — This is as a result of field work done during 1955 and 1956.

Table II: Bombay

Rent-paying Families by Monthly Rent and Tenement

Monthly Rent: in Rupees	*Bunglow*	*Flat*	*Chawl*	*Hutment*	*Other*	*Total*
10 or below	2 (—)	43 (0.9)	4,583 (90.9)	374 (7.4)	39 (0.8)	5,041 (100.0)
11 — 20	7 (0.1)	123 (3.5)	3,309 (93.4)	79 (2.2)	28 (0.8)	3,546 (100.0)
21 — 30	12 (1.0)	216 (17.2)	998 (79.5)	13 (1.0)	16 (1.3)	1,255 (100.0)
31 — 40	9 (1.4)	240 (38.6)	357 (57.3)	9 (1.4)	8 (1.3)	623 (100.0)
41 — 50	5 (1.5)	215 (62.9)	111 (32.3)	4 (1.2)	7 (2.1)	342 (100.0)
51 — 75	6 (1.6)	288 (73.9)	90 (23.2)	1 (0.3)	4 (1.0)	389 (100.0)
76 — 100	5 (3.1)	132 (81.0)	22 (13.5)	2 (1.2)	2 (1.2)	163 (100.0)
101 — 150	2 (1.6)	112 (90.3)	10 (8.1)	—	—	124 (100.0)
151 — 200	1 (2.6)	37 (97.4)	—	—	—	38 (100.0)
201 & above	2 (3.6)	53 (96.4)	—	—	—	55 (100.0)
Not or inadequate information	—	15 (11.5)	109 (83.9)	3 (2.3)	3 (2.3)	130 (100.0)
Total	51 (0.4)	1,474 (12.6)	9,589 (81.9)	485 (4.2)	107 (0.9)	11,706 (100.0)

Figures in brackets are percentages of the total.

Source: D. T. Lakdawala, V. N. Kothari, J.C.S. Sandesara and P. R. Nair—*Work, Wages and Well being in an Indian Metropolis*—Economic Survey of Bombay City—University of Bombay, Chapter IX, Page 723.

Table III: Bombay

Rent-paying Families by Monthly Rent Paid and Number of Rooms

Monthly Rent in Rupees	*One*	*Two*	*Three*	*Four*	*Five*	*Six and above*	*Total*
Less than 11	4,886 (96.9)	145 (12.9)	9 (0.2)	—	—	1	5,041 (100.0)
11 — 20	3,047 (86.0)	469 (13.2)	25 (0.7)	4 (0.1)	—	1	3,546 (100.0)
21 — 30	802 (63.9)	383 (30.5)	53 (4.2)	12 (1.0)	4 (0.3)	1 (0.1)	1,255 (100.0)
31 — 40	267 (42.9)	268 (43.0)	70 (11.2)	14 (2.2)	8 (0.5)	1 (0.1)	623 (100.0)
41 — 50	87 (25.4)	141 (41.2)	88 (25.7)	21 (6.1)	8 (0.9)	2 (0.6).	342 (100.0)
51 - 75	77 (19.8)	111 (28.5)	126 (32.4)	53 (13.6)	20 (5.1)	2 (0.5)	389 (100.0)
76 — 100	9 (5.5)	54 (33.1)	40 (24.6)	41 (25.2)	11 (6.7)	8 (4.9)	163 (100.0)
101 — 150	4 (3.2)	27 (21.8)	32 (25.8)	33 (26.6)	15 (12.1)	13 (10.5)	124 (100.0)
151 — 200	—	6 (15.8)	9 (23.7)	8 (21.0)	9 (23.7)	6 (15.8)	38 (100.0)
201 and above	—	1 (1.9)	8 (14.8)	9 (16.7)	16 (29.6)	21 (37.0)	55 (100.0)
No or inadequate information	101 (77.7)	19 (14.6)	4 (3.1)	5 (3.8)	— —	1 (0.8)	130 (100.0)
Total:	9,280 (79.3)	1,624 (13.9)	464 (4.0)	200 (1.7)	81 (0.7)	57 (0.5)	11,706 (100.0)

Figures in brackets are percentages of the total.

Source: D. T. Lakdawala, V. N. Kothari, J. C. S. Sandesara and P. R. Nair—*Work, Wages and Well-being in an Indian Metropolis* — University of Bombay, Chapter IX, Page 726.

Table IV : Bombay

Families by Monthly Income and Monthly Rent (in Rupees)

Monthly Rent

Monthly family income	10 *or less*	11-20	21-30	31-40	41-50	51-75	76-100	101-150	151-200	*Over* 200		*No or inadequate information*	*Grand Total*
Less than 50	191 (75.5)	52 (20.5)	6 (2.4)	1 (0.4)	—	2 (0.8)	—	1 (0.4)	—	—	253 (100.0)	13	266
50-99	1203 (72.4)	399 (24.0)	45 (2.7)	7 (0.4)	3 (0.2)	3 (0.2)	1 (0.1)	1 (0.1)	—	—	1662 (100.0)	49	1711
100-249	3098 (52.3)	2057 (34.7)	490 (8.3)	167 (2.8)	64 (1.1)	36 (0.6)	6 (0.1)	7	1	—	5926 (100.0)	43	5969
250-499	460 (18.6)	854 (34.5)	532 (21.5)	280 (11.1)	146 (16.0)	145 (6.0)	37 (1.5)	18 (0.7)	2 (0.1)	1 (0.1)	2475 (100.0)	14	2489
500-999	23 (13.1)	113 (15.3)	141 (19.1)	127 (17.2)	89 (12.1)	125 (17.0)	67 (9.1)	43 (5.8)	6 (0.8)	3 (0.4)	737 (100.0)	2	739
1000 and above	3 (0.9)	9 (2.6)	24 (7.0)	31 (9.0)	37 (10.7)	68 (19.8)	48 (14.0)	48 (14.0)	27 (7.8)	50 (14.0)	345 (100.0)	2	347
No or Inadequate information	63 (35.4)	62 (34.8)	17 (9.6)	10 (5.6)	3 (1.7)	10 (5.6)	4 (2.2)	6 (3.4)	2 (1.1)	1 (0.6)	178 (100.0)	7	185
Total :	5041 (43.5)	3546 (30.6)	1255 (10.8)	623 (5.4)	342 (2.9)	389 (3.4)	163 (1.4)	124 (1.1)	38 (0.3)	55 (0.5)	11576 (100.0)	130	11706

Source : D.T. Lakdawala, V.N. Kothari, J.C.S. Sandesara and P R. Nair—"*Work, Wages and Well-being in an Indian Metropolis* "Economics Survey of Bombay City—University of Bombay—Chapter IX, page 718.

Note : Figures in brackets show percentage of, 'Rent paying families' to total in each income group.

Talbe V : Calcutta

Rent and Different Income Groups

Income Group	Monthly Rent								
	1-5	6-10	11-15	16-30	31-60	61-125	126-250	*Rs.* 251 *Above*	*Average*
1-30	49.1	30.9	11.4	11.4	—	—	—	—	5.64
1-30(with food)	53.0	23.0	4.5	3.0	--	—	—	—	5.13
31-100	4.4	23.3	14.9	10.8	1.5	--	—	—	8.30
101-200	15.0	19 0	18.2	30.2	12.4	1.5	—	—	18.0
201-350	3.5	3.8	10.2	26.6	42.1	3.5	—	—	41.00
351-750	1.8	1.8	0.9	11.7	37.0	30.0	11.2	0.9	75.00
751-1200	—	--	2.0	4.0	14.3	50.0	2.4	2.0	107.00
1201 and Above	—		—	—	5.7	20.0	43.4	26.0	203.00

Source : S.N. Sen—'The City of Calcutta'—A Socio Economic Survey, 1954-55 to 1957-58. Chapter VII, page. 154.

Table VI: Calcutta

Rent in Different Types of Household

(Percentage of total in each type)

Monthly Rent (Rs.)	*Separate Flat*	*Complete House*	*Joint House*	*P.W. K.R.**	*K.W. K.R.***	*All Kutchas*	*Mess Hotel*	*Shop-dwelling*
1 — 5	—	—	30.3	32.0	37.3	45.3	30.0	11.7
6 — 10	—	—	12.2	20.0	26.8	30.1	31.6	19.0
11 — 15	1.5	—	25.3	18.3	20.4	15.2	6.3	17.0
16 — 30	9.2	7.0	10.3	13.4	10.0	4.0	3.4	28.2
31 — 60	38.0	30.5	14.1	2.0	1.5	0.5	5.6	8.4
61 — 125	30.6	30.5	2.5	0.2	0.3	0.1	—	1.0
126 — 251	13.4	20.0	0.27	—	—	—	—	—
251 and above	2.7	7.0	0.1	—	—	—	—	—
Average rent (Rs.)	85.0	103.0	19.0	9.0	8.5	7.0	—	—

* P.W.K.R. — *Pucca* Wall *Kutcha* Roof

** K.W.K.R. — *Kutcha* Wall *Kutcha* Roof

Source: S. N. Sen — '*The City of Calcutta*' — A Socio-Economic Survey, 1954-55 to 1957-58, Chapter VII, Page 152.

Table VII: Calcutta

Rent and the Ratio of Rent-paying Households

Monthly Rent (in Rupees)	*Percentage of rent-paying households to total*
1 — 5	31.4
6 — 10	20.0
11 — 15	14.0
16 — 30	16.0
31 — 60	8.6
61 — 125	3.1
126 — 250	1.1
251 and above	0.3
Not available	5.5
Total:	100.0

Source: S. N. Sen—'*The City of Calcutta*' — A Socio-Economic Survey, 1954-55 to 1957-58, Chapter VII, p. 149.

Table VIII: Lucknow
Distribution of Households by Monthly Rent or Letting Value

	Local		*Born Outside*		*Total*	
	No.	*%*	*No.*	*%*	*No.*	*%*
No rent	184	6.95	279	19.23	463	11.29
Less than Rs. 5	755	28.51	291	20.05	1,046	25.52
Rs. 5 to less than Rs. 10	796	30.06	317	21.86	1,113	27.16
Rs. 10 to less than Rs. 15	421	15.90	180	12.40	601	14.85
Rs. 15 to less than Rs. 30	339	12.80	222	15.30	561	13.69
Rs. 30 to less than Rs. 50	96	3.67	73	5.03	129	3.15
Total	2,648	100.00	1,451	100.00	4,099	100.00

Source: Radhakamal Mukerjee and Baljit Singh — 'Social Profiles of Metropolies' — Social and Economic Structure of Lucknow, Capital of Uttar Pradesh— 1954-56, Chapter IX P. 128.

APPENDIX II

Table A

[Index Numbers of Money Earnings of Workers Employed in Mines during December Each Year
(Dec. 1951 = 100)

Year		*Coal*	*Non-coal*	*All Minerals*
1951	(11.11)	100.0	100.0	100.0
1952	(11.31)	107.4	101.9	105.7
1953	(11.97)	107.5	101.6	105.6
1954	(12.16)	109.7	103.1	107.8
1955	(12.48)	112.2	104.9	109.9
1956	(17.65)	158.7	110.7	143.6
1957	(18.74)	178.9	118.5	159.9
1958	(21.34)	194.2	120.9	170.6
1959	(22.02)	210.3	124.1	183.1
1960	(23.56)	214.9	134.5	189.6
1961	(23.56)	214.7	161.7	198.0

Source: (1) Chief Inspector of Mines

(2) Chief Inspector of Coal Mines as quoted in *Indian Labour Statistics*-1962.

N.B. (a) Figures in brackets show 'Average Weekly Cash Earnings of Workers in Coal Mines'.

(b) The annual percentage rate of change of money earnings (weekly) of workers in coal mines is 9.6 (Regression Equation $\log_w = 1.2086 + 0.0397T$. Origin 1956 where T = O. T units is one year).

Table A (I)
Index Nos. of Money Earnings of Workers in Mines during December Each Year, 1962-69

Year		*Coal*	*Non-Coal*	*All Minerals*
1962	(24.36)	221.2	169.5	204.9
1963	(26.63)	240.2	171.9	218.7
1964	(26.71)	241.7	175.3	220.8
1965	(31.18)	280.5	190.1	252.0
1966	(34.56)	309.8	194.8	273.6
1967	(46.31)	417.1	217.4	354.2
1968	(49.77)	442.3	228.5	375.0
1969	(52.31)	452.5	248.6	388.3

Source: Director General of Mines and Safety as quoted by *Indian Labour Statistics* 1967, 1971.

Note: Figures in brackets show average weekly cash earnings of workers in coal mines.

Table B
Index Number of Money Earnings of Workers in Coal Mines during the Month of December
(Dec. 1951 = 100)

States	1951	1956	1961	
Andhra Pradesh	100.0	131.3	178.9	(25.58)
Assam	100.0	139.4	150.7	(20.53)
Bihar —				
Jharia	100.0	159.9	215.2	(23.58)
Raniganj	100.0	N.A.	N.A.	(22.93)
Madhya Pradesh	100.0	186.0	260.2	(23.83)
Maharashtra	100.0	N.A.	N.A.	(23.69)
Orissa	100.0	186.5	240.8	(22.60)
Rajasthan	100.0	203.2	221.7	(19.22)
W. Bengal (Raniganj)	100.0	149.4	202.9	(23.38)
Indian Union	100.0	158.7	214.7	(23.56)

N.A—Not Available

Source: 'Monthly Coal Bulletin, Dec. 1961' as quoted in *Indian Labour Year Book* 1962.

Note: Figures in brackets show 'Average Weekly Cash Earnings of Workers in Coal Mines during — 1961'.

Table B(i)
Index Numbers of Money Earnings of Workers in Coal Mines during the Month of December Each Year

State	1966	1969
Andhra Pradesh	259.0	393.9
Assam	246.0	269.8
Bihar (Jharia)	296.0	444.1
Madhya Pradesh	391.5	562.0
Maharashtra	--	—
Orissa	347.5	491.4
Rajasthan	246.5	—
West Bengal	306.8	438.6

Source: Directorate General of Mines Safety as quoted by *Indian Labour Statistics*, 1971.

Table C

Average Daily Earnings of Workers Employed in Mines other than Coal during the Year 1961

States	*China Clay*	*Copper*	*Gold*	*Iron Ore*	*Lime Stone*	*Manga-nese*	*Mica*	*Stone*
Bihar	1.24	4.70	—	3.32	4.09	—	2.72	2.26
Mysore (Karnataka)	—	—	6.03	--	—	1.77	—	—
Orissa	—	—	—	2.62	3.17	2.03	—	—
Madhya Pradesh	—	—	—	—	2.04	2.22	—	—
Maharashtra	—	—	—	—	—	2.77	—	—
Andhra Pradesh	—	—	—	—	—	—	2.39	—
Rajasthan	—	—	—	—	—	—	1.76	—

Source: Annual Report of the Chief Inspector of Mines for the year ending December 31st, 1961', as quoted in the *Indian Labour Year Book* — 1962.

Table C(i)

Average Daily Earnings of Workers Employed in Mines other than Coal during the Year 1965.

States	*China clay*	*Copper*	*Gold*	*Iron Ore*	*Lime Stone*	*Man-ganese*	*Mica*	*Stone*
Bihar	1.43	5.48	—	2.81	5.33	—	2.72	2.56
Mysore (Karnataka)	—	—	7.35	2.70	3.18	2.46	—	—
Orissa	—	—	—	3.45	4.00	2.20	—	—
Madhya Pradesh	—	—	—	—	3.38	2.54	—	—
Maharashtra	—	—	—	—	—	2.53	—	—
Andhra Pradesh	—	—	—	—	—	—	2.32	—
Rajasthan	—	—	—	--	5.14	—	2.27	—
Goa	—	—	—	4.33	—	—	—	—

Source: D.G.H.S. as quoted the *Indian Labour Year Book*, 1968.

Table D

Earnings of Plantation Workers in Assam (1947-48 to 1960-61)*

Years	*Average monthly cash earnings** of settled labour per worker on books*					
	Assam Valley			*Cachar*		
	Men	*Women*	*Children*	*Men*	*Women*	*Children*
1947—48	17.87	17.87	10.72	15.92	13.25	10.55
1948—49	19.27	15.21	9.44	15.82	10.59	8.27
1949—50	21.78	15.94	11.08	17.53	11.91	5.24
1950—51	20.43	17.23	11.68	16.51	15.08	10.37
1951—52	22.49	19.85	12.37	17.41	16.69	10.33
1952—53	21.09	18.43	11.53	17.09	16.16	10.08
1953—54	35.15	30.29	17.94	32.08	26.14	16.64
1954—55	40.71	35.61	21.65	31.93	27.07	17.43
1955—56	46.12	40.60	25.95	33.60	28.22	18.06
1956—57	47.48	41.42	25.01	32.35	27.86	18.43
1957—58	49.23	41.92	24.78	38.43	26.86	14.37
1958—59	45.45	38.76	23.28	30.24	27.38	18.70
1959—60	49.79	44.07	27.40	40.32	31.90	21.50
1960—61	50.77	45.67	29.87	40.59	30.58	27 74

Source: 'Controller of Emigrant Labour' as quoted in
(a) *Indian Labour Statistics* — 1962.
(b) *Indian Labour Year Book* — 1962.

* Ends on 30 September

** Cash Earnings exclude money value of concessions.

N.B. (1) With reference to the above Table a labourer is defined as a person working on wages not receding Rs. 50 per month (excludes a clerk, a domestic servant, or a mechanic, carpenter, mason, brick-layer or other artisans.

(2) The figures of earnings are based on tea estates submitting returns. The coverage is incomplete and varies from year to year.

(3) The figures in respect of the years prior to 1953-54 are based on two months' average (March and September), whereas those for 1953-54 and onwards are based on 12 months average.

(4) The figure for 1958-59 shows a slight fall due to the fact that no prosperity bonus was paid during the year.

(5) The increase in figures for 1959-60 over the figures for 1958-59 is due to increase in wage rates and the share of prosperity bonus.

Table E

Annual Percentage Rate of Change of the Earnings of Plantation Workers in Assam (1947-48 to 1960-61)

Area	*Annual Percentage rate of change**
Assam Valley	
Men	9.9
Women	10.9
Children	10.0
Cachar	
Men	8.8
Women	9.4
Children	9.6

*Based on regression equation of the type log W = a+b where W is monthly earning and T is year.

Note: Based on data as given in Table D of Appendix II.

Table - F
Average Annual Money Acreage of Persons Employed in Factories Earning Rs. 300 Per Month by Industries

(Rupees)

		1951	1952	1953	1954	1955	1956	1957	1958	1959	1960**	1961
1.	Process allied to agriculture (gins and presses)	155	185	170	189	157	211	195	197	203	207	228
2.	Food except beverages	480	522	534	536	480	633	622	677	636	662	1,215
3.	Beverages	969	878	916	889	984	861	936	889	978	957	1,039
4.	Tobacco	392	395	419	446	395	461	518	493	686	710	1,521
5.	Textiles	1,044	1,122	1,116	1,090	1,191	1,245	1,243	1,306	1,337	1,407	1,485
6.	Cotton mills	1,178	1,258	1,228	1,172	1,302	1,360	1,364	1,435	1,477	1,561	1,658
7.	Jute mills	815	905	914	936	995	1,034	1,037	1,045	1,057	1,130	1,093
8.	Silk mills	991	946	953	1,026	11,31	1,218	1,216	1,311	1,146	1,301	1,266
9.	Woollen mills	988	930	1,047	988	954	1,025	986	1,070	1,179	1,359	1,361
10.	Footwear, other wearing apparel and made up textile goods	989	1,122	1,038	1,107	1,101	1,098	1,308	1,336	1,399	1,425	1,459
11.	Wood and cork except furniture	654	667	717	746	670	762	727	846	843	858	856
12.	Furniture and textures	940	834	883	970	681	716	959	781	831	1,031	1,124
13.	Paper and paper products	958	1,019	998	948	1,063	1,036	1,158	1,226	1,276	1,294	1,254
14.	Paper	997	1,048	1,032	917	1,102	1,081	1,213	1,331	1,410	1,376	1,327
15.	Printing, publishing and allied industries	1,052	1,156	1,123	1,214	1,152	1,189	1,218	1,210	1,316	1,228	1,319
16.	Leather and leather products except footwear	752	719	879	815	837	757	890	1,118	1,045	944	1,180
17.	Tanneries and leather finishing	749	705	881	653	716	632	776	935	783	771	977
18.	Rubber and rubber products	1,325	1,340	1,432	1,336	1,368	1,502	1,497	1,326	1,274	1,414	1,491
19.	Chemical and chemical products	968	974	1,036	1,021	957	981	1,147	1,308	1,367	1,334	1,432
20.	Fine and pharmaceutical chemicals	978	1,010	1,049	1,078	1,142	833	1,186	1,287	1,413	1,384	1,415
21.	Matches	842	891	961	684	608	911	914	1,562	1,570	896	1,131
22.	Products of petroleum and coal	1,132	1,157	1,408	1,340	1,493	1,686	1,990	1,850	2,195	2,042	1,855

(Continued)

Table F (*Contd.*)

(Rupees)

		1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
23.	Non-metalic mineral products (except products of petroleum and coal)	699	696	824	740	782	833	835	885	920	1,008	1,014
24.	Manufacturing of glass and glass products (except optical lenses)	692	720	777	828	823	755	775	858	975	904	1,069
25.	Manufacturing of pottery, china and earthenware	654	722	738	718	769	786	790	893	903	984	1,030
26.	Manufacturing of cement	919	1,074	1,156	1.232	1,184	1,206	1,363	1,410	1,477	1,462	1,686
27.	Basic metal industries	1,368	1.533	1,711	1,163	1,673	1,488	1,463	1,557	1,529	1,499	1,506
28.	Metal products (except machinery and transport equipments)	917	991	942	1,205	1,048	1,120	1,145	1,186*	1,253	1,304	1,315
29.	Machinery (except electrical machinery)	998	1,030	1,032	1,118	1,100	1,136	1,189	1,322	1,216	1,225	1,296
30.	Electrical machinery, apparatus, appliances and supplies	1,238	1,296	1,309	1,275	1,340	1,314	1,438	1,470	1,490	1,435	1,493
31.	Transport equipment	1,171	1,671	1,164	1,392	1,430	1,473	1,482	1,458	1,473	1,422	1,641
32.	Ship building and repairing	1.337	1,317	1,258	1,604	909	1,594	1,659	1,620	1.620	1,688	1,844
33.	Miscellaneous industries	1,067	995	1,074	1,162	1,210	1,170	1,249	1,211	1,262	1,284	1,280
34.	Electricity, gas and steam	1,229	1,300	1,413	1,329	1,372	1,455	1,592	1,568	1,548	1,506	1,572
35.	Water and sanitary services	908	973	899	1,046	1,041	1,116	1,148	1,207	1,242	1,110	1,304
36.	Recreation services	969	969	920	946	1,037	1,227	1,302	1,167	1,056	1,221	1,421
37.	Personal services	853	328	337	374	364	465	488	598	770	722	981

N.B. The above figures are in terms of rupees. The Payment of Wages Act covers such factories as are defined under clause (m) of section 2 of the Factories Act--1948. Figures for 1956 exclude those from Karnataka, Kerala, Rajasthan, Himachal Pradesh, and Jammu and Kashmir, for 1958 exclude those from Tamil Nadu, Karnataka, Kerala, Himachal Pradesh and Jammu and Kashmir, for 1959 exclude those from Tamil Nadu, Karnataka, Himachal Pradesh, and Jammu and Kashmir, for 1960 those from Himachal Pradesh, and Jammu and Kashmir. In the figures for 1960, estimated figures of Madhya Pradesh, Tamil Nadu and Rajasthan have been included.

*Figures exclude those of Assam.
**Provisional and estimated

Table - G

Average Annual Money Earning of Persons in Factories Earning Less Than Rs. 200 Per Month in the Public and the Private Sector by Industries and States, 1961, (P)

(Rupees)

	Assam	Bihar	Gujarat	Kerala	Madras (Tamil nadu)	Mysore (Karnataka)	Orissa	Punjab	Rajasthan	Uttar Pradesh	West Bengal	Andaman and Nicobar Islands	Delhi
1. Processes allied to agriculture (gins and presses)	191	851	186	—	266	189	—	499	506	536	655	—	911
2. Food (except beverages)	679	885	718	405	753	397	562	581	—	1,126	684	—	1,148
3. Beverages	943	1,020	894	—	1,087	—	1,043	793	398	1,080	1,331	—	998
4. Tobacco	—	883	354	755	809	283	754	619	—	530	929	—	—
5. Textiles	348	879	1,793	1,237	1,591	1,206	999	985	1,038	1,182	1,141	—	1860
6. Footwear, other wearing apparel and made up textile goods	—	1,819	1,071	658	774	832	—	18	—	1,777	1,073	—	983
7. Wood and cork (except furniture)	917	649	761	672	717	788	759	898	—	1,038	922	957	1,442
8. Furniture and fixtures	1,611	884	851	838	822	1,342	871	964	—	1,046	1,261	966	1,502
9. Paper and paper products	—	1,512	857	1,176	636	560	1,699	941	—	1,197	1,375	—	806
10. Printing and publishing and allied industries	1,904	1,025	1,251	1,097	1,310	916	1,183	1,341	1,244	1,157	1 304	2,305	1,667
11. Leather and leather products (except footwear)	—	2,043	837	—	991	678	340	786	—	1,456	1 030	—	1,004
12. Rubber and rubber products	—	—	1,239	896	1,797	870	—	669	—	747	1 744	—	907
13. Chemical and chemical products	1,521	1,296	1,461	2,140	1,023	907	1,169	1,212	—	831	1 463	1,248	1,375
14. Products of petroleum and coal	1,645	1,583	1,954	1,931	1,552	2,050	—	1,839	—	1,878	1 974	—	2,085
15. Non-metallic mineral products (except product of petroluem and coal)	—	2,410	1,436	—	577	705	689	612	1,067	799	1 107	—	777
16. Basic metal industries	681	2,142	890	263	1,095	761	1,315	1,021	642	1,146	1,500	—	1,046

Table G (*Contd.*)

		Assam	*Bihar*	*Gujarat*	*Kerala*	*Madras (Tamil-nadu)*	*Mysore (Karna-taka)*	*Orissa*	*Punjab*	*Rajas-than*	*Uttar Pradesh*	*West Bengal*	*Andaman and Nicobar Islands*	*Delhi*
17.	Metal products (except machinery trans. equipment)	1,748	955	917	855	1,206	792	1.768	900	921	1,289	1,481	—	952
18.	Machinery (except electrical machinery)	1,210	1,863	1,179	1,145	1,156	1,500	1,241	838	338	858	1,329	—	,1187
19.	Electrical machinery apparatus, appliances — and supplies	--	1,624	984	1,259	1,196	1,146	—	953	—	1,438	1,746	—	998
20.	Transport and transport equipment	1,336	1,015	1,264	1,144	1,560	1,500	1,116	1,427	206	1,203	1,612	1,483	1,732
21.	Miscellaneous industries	—	571	1,107	1,048	970	1,145	993	1,159	756	1,454	1,058	—	1,642
22.	Electric gas and steam	1,496	1,570	1,879	1,601	1,594	1,639	1,886	1,398	850	1,576	1.703	1,951	N.A.
23.	Water and sanitary services	1,880	1,125	1,173	1,149	1,730	—	1,078	—	1,244	1,486	—	—	—
24.	Rereation services	—	—	—	—	1,681	—	—	—	—	889	—	—	—
25.	Personal services	—	645	560	1,301	845	867	1,180	1,249	—	1,214	981	—	1,309

Source: *Indian Labour Statistics* — 1963

N.B. The figures have been obtained by dividing the total wages bills by corresponding figures at average daily employment. Figures for average daily employment are as otained under the Payment of Wages Act and are, therefore, different from those obtained under the Factories Act, 1948. Figures for Andhra Pradesh and Maharashtra could not be included due to late receipt of return.

P Provisional.

CHAPTER XVI

LABOUR AND EMPLOYMENT

I. Policy Before and After Independence

Labour in India has made significant strides in recent decades, particularly since the thirties. This has been made possible by the increasing social consciousness among the entire community, assisted by a series of progressive pieces of legislation on labour matters by the Government which, in turn, were due to pressure from the trade union organization. The developments abroad as well as the standard-setting efforts of the International Labour Organization (I.L.O.) have also influenced the shaping of labour policies in India.

Early labour legislation in the country related mainly to the regulation of recruitment, forwarding and employment of Indian labourers under the indenture system to various British colonies, as well as to uncultivated lands and the nearly uninhabitated jungles of Assam towards the expansion of the plantation industry in that area. Labour of Indian origin can be found even today in places like Sri Lanka, Burma, Malaysia, Africa, etc. Under the regulatory scheme, the worker was bound by a contract to serve for a specified period, failing which, he could be arrested for criminal breach of contract. The Government, however, prescribed a minimum wage and provided for the protection of labour in certain other respects.

Some attempts to mitigate the serious abuses in the employment of workers in factories were made towards the close of the last century. These again were more from the point of view of protecting the competitive capacity of British products from those of Indian origin where labour was not regulated at all. The Factories Acts, 1881 and 1891, provided for the limitation on the employment and working hours of workmen and children. Between 1875 and 1908, factory legislation was the subject of investigation by four commissions or committees. Most of these investigations led to the amendment of the Factories Act. Similarly, in regard to mines, the first Mines Act, 1901, contained provisions relating to safety and health but imposed no restrictions on employment of labour and hours of work. Except for this and the Factories Act, 1911, the period upto the end of the First World War (1914-18) did not see any further significant developments in the field of labour.

The period following the close of the First World War witnessed the emergence of the organizations of workers. Employers were organized even before this period, but mainly in the form of Associations and Chambers of Commerce to deal with matters of common interest pertain-

ing to trade, commerce and industry. Their aim was to protect the interests of their members. They took an active part in the discussion of legislative measures affecting trade and industrial policies, as well as those having a bearing on social and labour matters. The industrial unrest following the end of the First World War compelled employers to devote more attention to the demands of employees for improved working conditions. To some extent, this was due to the gradual growth of trade unionism (in the presently accepted sense of the term) during this period. This brought home to the employers the need for a common approach on matters affecting labour and for the first time there were some instances of employers and workers acting in consultation with each other in labour matters.

The International Labour Organization was set up in 1919 and India became a member of this organization from its inception. The membership of the I.L.O., assisted further in the spread of labour-consciousness in India. This, coupled with the economic difficulties of industrial labour following the close of war, and the prosperity of employers, led to a widespread unrest and culminated in the birth of a central organization of workers, *viz.*, the All-India Trade Union Congress, in 1920. The political turmoil in the country provided leadership to the trade union movement. The association of political leaders with the trade union movement had mixed results.

These developments accelerated the pace of labour legislation in India. The Factories Act was amended in 1922, 1923 and 1926, to reduce the hours of work of adults to 11 a day and 60 a week, to provide payment for overtime work, to raise the minimum age of employment of children from 9 to 12 years, to extend the coverage of the Act, etc. The Mines Act, 1923, provided *inter-alia* provision for the exclusion of children under 13 years, grant of a weekly holiday and the limitation of weekly hours to 60 above ground and 54 under ground. The other important measures were the Workmen's Compensation Act, 1933, modelled on the British pattern and amended twice, once in 1926 and again in 1929. to bring it in line with the I.L.O., conventions on the subject; the Indian Trade Unions Act 1926, which is still in force; the Trade Disputes Act, 1929, etc. All these aimed at gradual improvement in the working and living conditions of labour.

The appointment of the Royal Commission on Labour in 1929, marked the next important stage in the evolution of labour and employment policies in India. The main purpose of the Commission was to enquire into the conditions of labour in industrial undertakings and plantations in British India, on the health, efficiency and standard of living of workers, on the relation between the employers and employees and to make recommendations on these matters. The Commission made comprehensive and detailed recommendations for the revision of

the old laws and/or enactment of new ones on the various aspects of working and living conditions of labour. Most of the legislation pertaining to labour enacted in the thirties arose either directly or indirectly out of the recommendations of the Commission. Under the constitution which governed India then, labour was a subject on which legislation by Provincial Governments was possible. Some of the more industrialized provinces availed themselves of this situation to enact legislation suitable to labour conditions in the respective provinces.

Then came the period of the Second World War. Labour legislation enacted during the period falls under two main headings, *viz.*, (i) laws and regulations adopted by following the usual legislative procedure, and (ii) emergency measures, put into force by Ordinances, to meet the demands of war. Important measures that fall in the former category relate to the Industrial Statistics Act, 1942, Amendments to the Factories Act, etc. The emergency measures undertaken during the period related to the utilization of men and material to the maximum advantage for the prosecution of war by regulating (i) recruitment, (ii) discharge, (iii) transfer of technical personnel, (iv) hours of work, etc. In regard to industrial disputes, an amendment to the Defence of India Rules (Rule 81A) empowered the Central Government (i) to prohibit strikes or lock-outs in connection with any trade dispute unless reasonable notice was given, (ii) to refer disputes to conciliation or adjudication, and (iii) to require the employer not to worsen the terms and conditions of employment pending the completion of proceedings under this Rule. Another significant step taken during the period was the establishment in August 1942 of a permanent tripartite organization, subsequently called the Indian Labour Conference, at national level, composed of representatives of Governments, employers and workers. It was modelled almost on the pattern of the International Labour Organization. The tripartite Conference, though mainly an advisory body, brought together the parties concerned and even to this day continues to be the main policy recommending body in regard to labour and connected matters. The main objects of the Conference were:—

(i) Promotion of uniformity in labour legislation.

(ii) The formulation of a procedure for the settlement of industrial disputes.

(iii) The discussion of all matters of all-India importance between employers, workers and Governments.

One of the earliest recommendations of the Conference accepted by the Government was the setting up of the Labour Investigation Committee whose deliberations, while bringing the work of the Royal Commission on Labour up-to-date, paved the way for the establishment of a permanent machinery for studying labour problems.

The period following the Second World War synchronized with the

complete transfer of power in India on 15 August, 1947. Immediately after the assumption of office, even prior to independence, the National Government came forward in 1946 with a five-year programme of legislative and administrative action in the field of labour. This was expected to serve as a post-war reconstruction programme for the amelioration of labour conditions and aimed at the implementation of most of the recommendatons of the Labour Investigation Committee.

The programme was discussed at a special meeting of employers and workers and Central and Provincial Ministers and was generally approved. The important elements of this programme were:

I. **Wages**

(a) Statutory prescription of minimum wages in "sweated" industries and occupations.

(b) Standardization of occupational terms and wages in all the major industries and the determination of differentials in wage rates as between various occupations in an industry.

(c) Promotion of 'fair wage' agreement including the introduction of time scales, wherever possible, with due regard to the capacity of industry to pay.

II. **Regulation and Improvement of Working Conditions**

(d) Reduction in the hours of work in mines to bring the working hours in line with hours of work in factories.

(e) Overhaul of the Factories Act with a view to the prescription and enforcement of right standards in regard to lighting, ventilation, safety, health and welfare of workers.

III. **Social Security Measures**

(f) Organization of the Health Insurance Scheme, applicable to factory workers to start with, for the provision of medical treatment and monetary relief during sickness, maternity benefit on an extended scale, medical treatment in the case of disablement, etc.

IV. **Housing**

(g) Provision of adequate housing for workers within the resources of both materials and man-power.

V. **Industrial Relations**

(h) Trade disputes legislation to provide conciliation and adjudication machinery in respect of essential public utility services and important industrial undertakings.

(i) Appointment of Joint Works Committees to iron out day-to-day difficulties.

(j) Organization of industrial committees on a tripartite basis for important industries, namely, coal, cotton textiles, jute, plantations and engineering.

The programme also envisaged the strengthening of the machinery both at the Centre and States for the efficient administration of labour policies.

In spite of the declaration of the Government's intention to ameliorate the conditions of labour, industrial unrest persisted in the country in the early days of independence. The mandays lost owing to industrial disputes between 1946 and 1950 were 11.3 million per annum. Production had fallen all round. The Government of India called in December 1947 an Industries Conference consisting of representatives of Government (Centre and States), employers and workers, to consider action to be taken to remedy the situation. The Conference reached certain decisions and adopted unanimously a resolution called the Industrial Truce Resolution (1947). The Resolution recognized that increase in industrial production, which was so vital to the economy of the country, could not be achieved without the fullest co-operation between labour and management. It urged the employers to recognize the proper role of labour in industry and the need to provide fair wages and good working conditions. Labour, for its part, was required to recognize its duty towards increasing national income. The need for mutual discussion of problems common to both and settlement of all disputes without recourse to interruption in or slowing down of production was emphasized, as also the determination of a suitable method of remunerating the factors of production, keeping in view the interests of consumers, primary producers, the industry, etc. To attain these objectives the Resolution recommended *inter-alia* that —

(i) the fullest use should be made of statutory and other machinery for the resolution of industrial disputes in a just and peaceful manner;

(ii) a machinery be set up for the study and determination of fair wages and conditions of labour, fair remuneration for capital and methods for the association of labour in all matters concerning industrial production;

(iii) works committees representing management and duly elected representatives of labour should be constituted in industrial units for the settlement of day-to-day disputes; and

(v) as a first step, immediate attention should be devoted to the problem of housing of industrial labour; the cost of such housing should be shared in suitable proportions between the Government, employers and labour.

On these principles, the Resolution called upon labour and management to agree to maintain industrial peace and to avert strikes and lock-outs or slowing down of production for a period of three years.

The Industrial Truce Resolution was accepted by the Government in their settlement on Industrial Policy dated April 6, 1948. The Government considered that labour's share in profits should be on a sliding scale normally varying with production. It, therefore, appointed an Export Committee to study the question of profit sharing in industries. After detailed examination of the issues, the Profit Sharing Committee came to the conclusion that the system of profit sharing should be tried on an experimental basis in selected industries for a period of five years. Towards the end of 1948, another committee, the Fair Wages Committee, was set up to determine the principles on which fair wages were to be based and to suggest the lines on which these principles should be applied. The report of this committee even to this day provides the guidelines for the settlement of wage disputes in the organized industrial sector.

The developments referred to above led to the necessary legislative activity in the field of labour. With the passing of the Industrial Disputes Act in 1947, the Government adopted a comprehensive measure to improve industrial relations, by providing for a machinery for peaceful settlement of disputes and for setting up of Works Committees, etc. The Factories Act, 1948, aimed at plugging the loopholes in the earlier Act and also enlarging its scope in certain directions. The Minimum Wages Act 1948, sought to fix for the first time minimum rates of wages to employees in certain "sweated" industries. A pioneering measure undertaken by the Government in social insurance in the country was the passing of the Employees' State Insurance Act, 1948. It provided for certain benefits to employees in case of sickness, maternity, employment injury, etc. Other similar measures taken during the period that deserve mention are, first, the Coal Mines Labour Welfare Fund Act, 1947, creating a fund for the welfare of the coal miners and the machinery for its administration and, second, the Coal Mines Provident Fund and Bonus Schemes Act, 1948, to safeguard the future of mine workers. Legislation was enacted for compulsory recognition of trade unions and the Fair Wages Bill was also drafted.

At about this time, the constitution of independent India was being framed. It came into force on January 26, 1950. The need to improve the welfare and standard of living of the working class was recognized in the Constitution. Under Fundamental Rights, the Constitution prohibited the imposition of forced labour, and employment of children below the age of fourteen years in any factory or mine or in any other hazardous work. The Directive Principles of State Policy, apart from the provisions relating to right of work, equal pay for equal work, public assistance in case of unemployment, etc., specifically mentioned: "The

State shall endeavour to secure by suitable legislation or economic organisation or in any other way, to all workers, agricultural, industrial or otherwise, work, living wage, conditions of work ensuring a decent standard of life and full enjoyment of leisure and social and cultural opportunities . ."

Under the Constitution, 'labour' is included in the Concurrent List, thus continuing the arrangements existing since 1919, and therefore, both the Union and the State Governments have powers to make laws relating to labour. However, certain items like participation in international conferences, associations and other bodies and implementation of such decisions; regulation of labour and safety in mines and oil-fields and industrial disputes concerning union employees fall exclusively within the purview of the Central Government. Items included in the Concurrent List are: trade unions, industrial and labour disputes, social insurance, employment and unemployment, welfare of labour including conditions of work, provident funds, employers' liability of workmen's compensation, invalidity and old age pensions, maternity benefits, vocational and technical training of labour, economic and social planning etc. However, when the provisions of an Act passed by the Union conflict with those of a State Act, the former generally prevails. Under these concurrent arrangements, some of the State Governments had enacted comprehensive legislation on industrial relations, maternity benefits, etc., even before such laws were enacted by the Central Government. Within two months of the adoption of the Constitution, the Planning Commission was set up to work out a programme of development, keeping in view the declared objective of the Government as set out in the Directive Principles of State Policy of the Constitution. In formulating the programme for labour in the First Plan, the Commission was advised by a committee called the Industries Development Committee, composed of representatives of employers and leaders of the principal workers' organizations in the country. The Plan recognized that the worker was the principal instrument in the fulfilment of the Plan targets and said that "this co-operation will be an essential factor in creating an economic organisation in the country which will best subserve the needs of social justice". The Plan further stated that "adequate provision has to be made for the basic needs of workers in respect of food, clothing and shelter so as to enable them to remain in a state of health and efficiency. Besides, the satisfaction of their basic needs, workers should have their due share in social and economic progress in the shape of improved health services, wider provision of social security, better educational opportunities, and increased recreation and cultural facilities." It also emphasized the need to improve productivity for raising the standard of living of the community, and pointed out that the role of labour involved acceptance of greater regularity in attendance,

disciplined behaviour and meticulous care in the discharge of duties. Specific recommendations in regard to securing peace in industry through avoidance of dispute, overhauling of the machinery and procedure relating to settlement of disputes once they arose, defining the role and conduct of trade unions, improvement in wages, working conditions, social security, etc. were also made.

A general assessment of what happened in the First Plan revealed that the machinery for the settlement of industrial disputes worked well. There was a reduction in the number of mandays lost owing to industrial disputes. Real wages of workers were restored to the pre-war level. The desire to associate labour with management in the solution of common problems gained momentum. The importance of better working conditions came to be progressively recognized; efforts were intensified to improve housing for industrial workers Progress was made in the implementation of social security measures like the Employees' State Insurance Act, 1948, and the Employees' Provident Fund Act 1952. Lay-off and retrenchment compensation was provided for through an amendment of the Industrial Disputes Act, 1947, in 1953.

The labour policy in the Second Plan was formulated on the basis of advice rendered to the Planning Commission by the Labour Panel composed of employers' and workers' interests and Government representatives. The Plan, while making no changes in the basic policy, emphasized the need for fuller implementation of existing laws rather than the enactment of new ones. It said: "The goal of speeding up production would mean that indiscipline, stoppage of production and indifferent quality of work will have to be guarded against". In industrial relations, emphasis was on mutual agreement. Labour legislation and the enforcement machinery set up for its implementation could only provide a suitable framework in which employers and workers could reach such agreements. The best solution to common problems, however, could be found by mutual agreement. The main elements of the policy were, avoidance of disputes, quicker disposal of disputes once they arose, adequate implementation of awards and agreements, joint consultations, greater association of workers with management through joint management councils at the level of the undertaking, observance of strict discipline both on the part of labour and management, etc. In wage policy, the evolution of a structure with rising real wages was aimed at. Appointment of wage boards consisting of employers' and workers' representatives as the machinery for settling wage demands was also recommended. Extensive and deeper coverage of the social security measures was envisaged. Apart from these a massive programme of craftsmen training was undertaken.

In accordance with the above policy, legislative activity during 1956-61 was confined to amending the existing legislation with a view to plugg-

ing loop-holes noticed in the course of implementation. Wage Boards were set up to examine the wage levels in important industries like cotton textiles, jute products, sugar, cement and plantation industries. During the Second Plan, joint management councils were set up in many units on an experimental basis. These councils have the right to obtain information regarding the working of the undertaking and also have direct administrative responsibility for matters concerning workers' welfare, training and allied matters. Their main purpose has been to provide a machinery for mutual consultation between employers and workers on matters affecting industrial relations. To enable workers to realize their role in industries and effectively participate in joint consultation, a country-wide programme of workers' education was initiated.

In industrial relations, a new approach based on moral, rather than legal, sanctions was initiated. During the early years of the Second Plan, complaints were voiced from the workers' side about the non-implementation of awards, agreements, etc., by managements, while the latter referred to the signs of indiscipline among the workers. The Plan recognized that conditions for better discipline could not be created merely by legislation but would have to be achieved jointly by organizations of employers and workers evolving suitable sanctions of their own. A code called the Code of Discipline in Industry was, therefore, adopted voluntarily by all the central organizations of employers and workers towards the middle of 1958, and has been in operation since. The Code lays down specific obligations for management and workers with a view to promoting constructive co-operation, avoiding stoppages of work as well as litigation, securing settlements of disputes and grievances by mutual negotiations, conciliation and arbitration, facilitating free growth of trade unions and eliminating all forms of coercion and violence in industrial relations. The Code carries with it its own sanctions. The working of the Code has produced encouraging results. It has created awareness amongst employers and workers of their obligations towards each other. The desire to settle disputes through mutual negotiations is growing. The Code provides for a regular grievance procedure. As a complement to the Code of Discipline, another code, called the Code of Inter-Union Conduct, has been adopted by workers' organizations in order to regulate inter-union relations. A machinery for implementation and evaluation has also been set up at the Centre and in the States to ensure observance by parties of the obligations arising from the Codes and from laws and agreements.

The Third Plan mainly envisaged an extension of the policy pursued in the first two Plans. In industrial relations, the Plan recommended that a fuller awareness of the obligations under the Code of Discipline should be extended to more units; greater recourse would have to be had to voluntary arbitration in resolving differences; and works committees

should be set up to develop harmonious relations between employers and workers at the unit level. Progressive extension of the schemes of worker participation in management and workers' education was also envisaged. To settle wage problems, the machinery of the wage board was expected to be continued. A Tripartite Bonus Commission was set up to study problems connected with bonus claims. A mid-plan appraisal of the policy pursued in the Third Plan showed that, on the whole, the policy had worked well.

Labour relations continued to be regulated by the protective legislative measures introduced in earlier Plan periods and the tripartite arrangements. A mention may be made of the Payment of Bonus Act, 1965, Shops and Commercial Establishment Act and Labour Welfare Fund Acts in States. A National Safety Council was set up in 1966. Out of the 22 wage boards set up covering almost all the major industries, 19 have submitted their reports. Under the Minimum Wages Act, 1948, minimum wages were fixed and periodically revised by State Governments in respect of various agricultural and other trades. The National Labour Commission set up in 1966 submitted its report in August 1969.

The sum up, the programmes and policies for labour envisaged under the Plans aimed at the fulfilment of certain assurances given to labour during the period immediately prior to, and following independence. Suitable alterations were made in them in the light of the socialist pattern of society adopted by Parliament in 1954 as the goal of our economic and social development. The approach is essentially pragmatic and thus flexible, as may be seen by the adoption of the Industrial Truce Resolution (1962) with the declaration of Emergency*. While some improvement in the conditions of labour has been achieved, much remains to be done. Money wages have gone up, although improvement in real terms may not be significant owing to the rise in price level. This has occurred without disturbing the wage element in the cost of production which has gone down somewhat. The climate of industrial relation has improved; productivity has gone up. Under the plan programmes, fresh employment opportunities have been created although the achievement of the full employment level still remains a long-term objective. All this achievement is, indeed, a tribute to the realistic manner in which the policies are framed through tripartite consultation on every aspect of the framing and implementation of policy.

II. Employment and Training

Employment pattern and policy: The employment policy pursued in recent years has to be viewed in the context of the pattern of employ-

*Appendix III.

ment as it prevailed before the initiation of the planning process and the specific social and economic objectives as set forth in the Plans. The statement below compares the broad occupational distribution of the working force in India on the basis of the population censuses conducted in 1951, 1961 and 1971:

TABLE I

Occupational Distribution of Working Force

(Population Census Data)

Workers engaged in	1951	1961	1971	1951	1961	1971
	(*in millions*)			(*percentages*)		
Cultivation	69.8	99.5	78.2	50.0	52.8	43.4
Agricultural Labour	27.5	31.5	52.0	19.7	16.7	26.3
Mining, Manufacturing & Household Industry	16.7	25.2	18.0	12.0	13.4	12.4
Construction	1.5	2.1	2.1	1.1	1.1	1.2
Trade & Commerce	7.3	7.6	10.0	5.2	4.0	5.6
Transport & Communications	2.1	3.0	4.4	1.5	1.6	2.4
Services	14.6	19.5	15.7	10.5	10.4	8.7
Total	139.5	188.4	180.4	100.0	100.0	100.0

It will be seen that nearly 70 per cent of the working population is engaged in agriculture. The excessive dependence on agriculture has affected productivity in agriculture, which is about a third of the productivity in other sectors of the economy like industry, commerce and transport. The growth of the non-agricultural sector has not been sufficient to absorb the surplus population on land, with the result that under-employment and unemployment are prevalent in the economy. It is because of this fact that employment has been one of the major objectives of planning in India.

The employment problem has two aspects: a number of people are idle and a much large number are under-employed. Low productivity and the need for improvement in living standards, associated with both whole time and partial employment, do not generate surpluses for development. Thus, both qualitative and quantitative improvement is needed in taking the economy to higher levels of development through generating employment.

It is for these reasons that employment has come to be viewed in its long-term perspective. Even here the difficulties of tackling effectively the unemployment problem may be seen from the estimates of growth in the labour force given in the Third Plan, where it is stated that during 1961-66 if our dependence on agriculture as a means of providing employment has to be reduced from 70 per cent to 60 per cent, we may still have to add over 23 millions in agriculture and allied occupations, and about double the number will have to be found for non-agricultural employment.

As to the other aspect, namely, increasing productivity simultaneously with raising the level of employment, it has been accepted that larger employment was not inconsistent with increase in the productivity of labour. Indeed, this is how the national income could be made to grow faster. Also, the other major goal of development *i.e.* reduction in inequality of income and in regional imbalances of development could be reached through a wider dispersal of employment opportunities and their suitable diversification. While, therefore, the long-term employment policy was governed by these objectives, in the short run, planning has to aim at creating employment opportunities which would help in arresting deterioration in the employment situation, *i.e.* by generating employment opportunities equivalent in number to the additions to the labour force under the Third Plan.

The magnitude of unemployment in the country was estimated to be around 5 millions in 1956 — roughly half of them in the urban areas. The Second Plan aimed at creating sufficient employment opportunities to absorb an equivalent of new entrants to the labour force estimated at about 10 millions. But the actual increase in the labour force during the Second Plan period was 1.7 million more than what was visualized, and the employment target of 10 million could not be reached, with the result that the backing of unemployment at the beginning of the Third Plan was about 9 million. Coupled with this there was the problem of under-employment which, in terms of those who have some work and who need additional work opportunities, is estimated at 15 to 18 million.

It was in this setting and the ever growing numbers in the labour force that the Third Plan was framed. The labour force increase was estimated at 17 million and the full time employment opportunities created through Plan investments were estimated at 14 million. Partly to bridge this gap and partly to relieve under-employment, the Third Plan envisaged a large programme of rural industrialization with emphasis on rural electrification, development of rural industrial estates, promotion of village industries. etc. In addition, comprehensive rural works programmes, especially in areas where there was heavy pressure of population, was also provided for. The rural works programme aimed not merely at the creation of additional employment opportunities; it was also expected to serve as an important means of harnessing the larger manpower resources available in rural areas for economic development. It was expected that the rural works programme would provide employment on an average of about 100 days in a year. for about 2.5 million persons, by the end of the Third Plan period.

Another aspect of the employment policy was to ensure within the framework of the Plans that proper attention was being given to maximizing the employment potential of projects included in the Plan, as well as

to see that the employment effects were spread out more widely and evenly than in the past. The former involved a question of choice of techniques. In an economy with relative abundance of labour, a general bias in favour of labour intensive techniques was both natural and desirable. But specific investment decisions involving alternative techniques, had to be made in the light of a number of considerations. For instance, the establishment of basic industries like steel, machine building, heavy chemicals, oil refineries, etc., was vital to raise levels of employment in the long run. Considerations of size and technology required that these industries should be capital intensive. To make up for the low employment potential of the basic industries, it was necessary to encourage consumer goods industries through labour intensive methods. However, in road construction, housing, laying railway lines, a certain combination of men and machines had been evolved over a period of years, a combination consistent with the progressive elimination of arduous human labour. This trend had to be allowed to continue, and so was the trend towards higher productivity in established industries. Maximization of employment had to operate within these constraints.

The impact of the employment policy pursued in the last few years has been to increase the employment opportunities to a significant extent. In an economy where the predominant pattern is one of self-employment, substantial increases have taken place since the planning process started in the number of wage earners as the following Table, which gives employment increases in certain organized sectors, indicates:

TABLE II
Average Daily Employmet

SECTOR (in '1000)

Year	*Factory*	*Mining*	*Plantation*	*Central Govt. including Railways, P & T (as on 30 June)*
1951	2,914	549	1,236	N.A.
1956	3,433	629	1,295	1,792
1961	3,928	671	1,210	2,186
1966	4,702	699	1,167	2,688
1967	4,760	671	1,148	2,715
1968	4,739	664	N.A.	2,726

Source: Indian Labour Statistics, 1960-64, 1970.*

The 1961 Census placed the number of unemployed at 1.4 million, 0.57 in the rural areas and 0.83 in the urban areas. The 16th round of the National Sample Survey estimated that unemployment in rural areas

*Data regarding employment in factories for the period 1951 to 1955 is only for the reporting factories/States while that for 1956 onwards includes the estimated employment regarding non-reporting factories/States.

was 1.62 per cent of the rural population and 0.82 per cent of the urban population for the period July 1960 to June 1961. On this basis, unemployment in 1961 worked out at 5.8 million in rural areas and 0.7 in urban areas. The comparative available figure for 1967-68 is 0.66 per cent of the urban population. Consequent upon widely differing estimates of unemployment, the Planning Commission set up in August 1968, a committee of experts to enquire into the estimates of unemployment worked out for the previous Plans and the data and methodology used in arriving at them.

On the basis of information available from the Directorate General of Employment and Training (which does not cover employment in agriculture and household establishments, the self-employed and the defence forces), employment increased from about 12.09 million at the end of 1960-61 to about 15.46* million at the end of 1965-66 or about 28 per cent, the average annual growth rate being 5 per cent during the Third Plan period. The growth of employment in 1966-67 was considerably lower at about 0.8 per cent, and during 1967-68 it was almost negligible. The slow growth in non-agricultural employment since 1965-68 is attributable to the slackness in the economy, and in particular to the virtual stagnation of the industrial sector during these years. The growth of employment during 1961-68 showed marked differences in different States. It was higher than the all-India rate in Kerala, Karnataka, Tamil Nadu, West Bengal and Maharashtra; it was very low in Bihar and Orissa.

Technical Personnel: One of the difficulties experienced in the First and Second Plans, and which has not yet been overcome, is the shortage of technical personnel. This experience keeps the planners continuously forewarned and a sufficient emphasis is not laid on providing facilities for technical training. Special committees were appointed to assess the demand and supply of technical personnel. A machinery by which the recommendations of these committees could be implemented and the progress of implementation reviewed has also been set up. It is not necessary to go into the details of this machinery, but it would be appropriate to point out what is being done by the Government in furtherance of one important aspect of technical manpower — training at the lower levels of skills with which labour welfare is closely linked.

Craftsmen Training: In view of the large demand for craftsmen, training facilities available in the Labour and Employment Ministry were raised from 10,000 seats in 1956 to 43,000 seats by 1961 — the end of the Second Plan. The Third Plan envisaged a gradual expansion of such

*Later revised at 16.18 million.

facilities to 1 lakh seats, with an estimated out-turn of 2 lakh craftsmen during 1961-66. A greater expansion in the craftsmen training scheme was not practicable unless sufficient facilities could be provided for the training of craft instructors. The number of Industrial Training Institutes for training craftsmen increased from 163 at the end of March 1961 to 356 in December 1968. The seating capacity increased from 42,685 at the end of 1960-61 to 146,788 in 1968-69.

Apprenticeship Training: During the Second Plan little progress was registered under the voluntary apprenticeship training scheme. With the enactment of the Apprentices Act, 1961, the scheme has been placed on a compulsory footing. Initially, the Act was applicable only to some engineering establishments. However, in August 1963, its coverage was extended to include almost all important industries, *e.g.*, textiles, paper, chemicals, rubber, food and beverages, construction, transport and communication, etc. The Central Government in consultation with the Central Apprenticeship Council, which was constituted in 1962, have laid down rules prescribing the minimum educational qualifications, standards of fitness, period of training, stipends to apprentices, hours of work, the number of apprentices to be trained in each establishment and industry, etc. The syllabuses for basic engineering trades have been prepared in consultation with technical experts. The State Governments have also set up State Apprenticeship Councils.

By 1969, 37,658 apprentices were undergoing training in 3,313 establishments in the public and private sectors. A Central Institute for Research and Training in Employment to conduct research in employment and periodically to impart training to employment officers was set up in 1964. The same year, the Indian Institute of Labour Studies was established in New Delhi to train Industrial Relations Officers of the Central and State Governments.

Employment Service: India has already a well-established employment service organization through a network of employment exchanges located at different parts of the country. Even so, each exchange covers a wide geographical area. Considerable progress has been made during the last decade in reducing the distance between exchange and job-seekers by establishing new centres. From a mere 126 exchanges in March 1951, the number of exchanges had risen to 317 by the end of the Second Plan (March 1961). There was simultaneously an enlargement of the scope of its activities. For example, under the Employment Market Information Scheme, employment information is collected on a continuous basis from all establishments in the public and private sectors employing 25 or more persons. Under the scheme of employment counselling,

guidance about careers and occupations is provided to employment seekers and occupational research and analysis is undertaken for the purpose. Establishment of University Employment Bureaux and Exchanges for the rural areas are some of the other important activities under the employment service scheme.

There were 461 Employment Exchanges including 45 University Employment Information and Guidance Bureaux, 15 Professional and Executive Employment Officers, 7 Colliery Exchanges, 8 Project Employment Exchanges, 9 Exchanges for the Physically Handicapped and 1 Special Exchange for Plantation Labour functioning in the country at the end of December 1969. In additon, 183 Employment Information and Assistance Bureaux to cater for the rural areas functioned in various Community Development Blocks. In the course of 1969, 10 additional Employment Exchanges including 2 University Employment Information and Guidance Bureaux were set up.

III. Industrial Relations

Industrial relations in a country depend on a variety of factors, such as labour legislation, the broad economic and social policies pursued by the Government, the state of consciousness on the part of employers and workers in regard to their rights and responsibilities towards one another and towards the nation. the strength of the employers' organization, and the trade union movement, etc. As pointed out earlier, the industrial relations policy as it has evolved in the last two decades, is essentially the product of extensive tripartite consultations. At the apex of the various tripartite consultative bodies is the Indian Labour Conference set up in August 1942. Since then, all the important policy decisions in the field of labour have been taken by the Government after discussions at tripartite meetings. The policy thus represents the consensus of opinion of the parties concerned, and has acquired the strength and character of a national policy operating on a voluntary basis. Apart from the formulation of policies, the tripartite bodies look after the implementation aspects also. The main plank on which the policy rests is that the major responsibility for maintenance of industrial peace must devolve equally upon the employer's and workers' organizations, the Government intervening only if disputes are not mutually settled.

The earliest known act relating to the settlement of trade disputes was the Employer's and Workmen (Disputes) Act, 1860, which provided for summary disposal by magistrates of disputes relating to wages of certain kinds of workers. Apart from its limited character, it contained various undesirable provisions like a breach of contract on the part of a worker being a criminal offence. It fell into disuse and was finally

repealed. The next significant legislative step taken towards regulation of industrial relations was the Trade Disputes Act, 1929. In between, different measures were adopted to prevent the occurrence of disputes as well as their settlement. The constitution of Works Committees received attention at an early stage. Works Committees were for the first time set up in 1920 in Government presses. Similar committees were also set up by the Tatas at Jamshedpur, the Buckingham and Carnatic Mills at Madras, etc., and by many progressive employers, but the results achieved were by and large disappointing. In addition to Works Committees, there were also occasions when conciliation or arbitration was undertaken by individuals or specially appointed committees or courts. The first attempt to settle disputes through formal bodies like courts was made in Madras in 1919-20. These were followed by other committees in other provinces also. One such committee known as the Fawcett Committee was set up in 1928 by the Government of Bombay for the settlement of the dispute between the employers and workers in cotton mills. So far as conciliation and arbitration was concerned, the individuals (usually officials) were also generally successful in bringing about settlements. Apart from these official efforts at settling labour disputes, Ahmadabad saw a standing arrangement for arbitration between labour and management, an arrangement which envisaged that if the arbitrators on behalf of workers and employers did not agree, the matter would be referred to a mutually agreed umpire.

Trade Disputes Act, 1929: The widespread industrial unrest following the close of the First World War brought into focus the need for legislation for the settlement of industrial disputes. Committees were set up in 1921 by the Provincial Governments of Bombay and Bengal to examine the feasibility of introducing legislation. Though Bombay had a bill ready in 1924, it was not processed through the legislature. The Trade Disputes Act was passed in 1929 by the Central Legislature. It provided for the setting up of Courts of Enquiry and Boards of Conciliation for the settlement of disputes. The Act also contained provisions rendering punishable by fine or imprisonment, lightning strikes or lock-outs in certain public utility services and embodied a provision aimed at the prevention of general strikes. The Act was originally limited in its operation to 5 years but was made permanent by an Act in April 1934.

State Legislation: The Royal Commission on labour which was appointed soon after the Trade Disputes Act 1929, was passed, recommended the establishment of permanent courts instead of *ad hoc* tribunals. They also emphasized the need to make available to the parties the services of Conciliation Officers and others in the earlier stages of the dispute, so as to bring the parties privately to agreement. To imple-

ment these recommendations, the Government of India amended the Act in 1938. In the meantime, Bombay had passed the Bombay Trade Disputes Conciliation Act, 1934, which, while not directly based on the Royal Commission's recommendations, incorporated some of its suggestions. It provided for the appointment of Chief Conciliators/Special Conciliators and Assistant Conciliators. The conciliators were empowered to initiate conciliation proceedings in cases where a trade dispute existed or was apprehended, to enforce the attendance of parties, obtain evidence etc. The Act was, however, made applicable only to the textile industry in Bombay City and the Bombay Sub-urban District. The Bombay Industrial Disputes Act, 1938, a later creation, provided for elaborate machinery for the settlement of disputes by conciliation or by arbitration. The Act provided *inter alia* for, first, appointment of a Board of Conciliation in case a dispute could not be settled by a conciliator; second, appointment of an Arbitrator or a Court of Industrial Arbitration; thirdly, declaration of strikes and lock-outs as illegal during negotiations and conciliation proceedings; fourthly, registration of unions recognized by employers; and finally, penalties for victimization of workers under certain circumstances. The Act was amended once in 1941 to make arbitration compulsory in certain cases.

The Trade Disputes Act, 1929, was amended in 1938 to provide for the appointment of conciliators as recommended by the Royal Commission. It also extended the definition of trade disputes to cover differences between employers and employers, or between workmen and workmen, and included transport and tramways under public utility services. Provisions concerning illegal strikes and lock-outs were also made less restrictive. Even so, for various reasons, the Act was not sufficiently used for settling labour disputes.

The Second World War called for more definite measures to deal with disputes than were provided under the then existing Acts or under the contemplated amendments. In January 1942, the Government of India introduced a new rule, Rule No. 81-A, to the Defence of India Rules, with a view to dealing with trade disputes. The details of this new rule have been quoted earlier in this chapter under the section on 'Policy Before and After Independence'. The principle of compulsory adjudication in the settlement of labour disputes was, as will be clear, introduced in the early forties and has remained with us ever since.

Industrial Disputes Act, 1947: Rule 81-A of the Defence of India Rules was in operation upto September 30, 1946; it was extended by an ordinance in 1946 for a further period of six months pending enactment of a suitable legislation. The Government had found the rule useful in preventing industrial unrest and felt the need to incorporate its compul-

sions in the permanent labour law of the country. The Government, therefore, enacted the Industrial Disputes Act in March 1947, incorporating in it many of the important provisions of the Trade Disputes Act, 1929, and the Rule 81-A of the Defence of India Rules. The Act provided for two new institutions *viz.* the 'Works Committees' and the 'Industrial Tribunals' for the prevention and settlement of disputes. The Act empowered the appropriate Government to order establishments employing more than 100 workers to set up Works Committees. Disputes could be referred to the Court of Enquiry, Board of Conciliation or Industrial Tribunal. It also sought to reorient the administration of conciliation machinery by making conciliation obligatory in all disputes in public utility services, and optional in other cases. With a view to expediting conciliaton, time limits were prescribed for their completion. The Act prohibited strikes or lock-outs during pendency of conciliation or adjudication proceedings.

The following details show the functioning of the Central Industrial Relations Machinery:

TABLE III

	1969	1970	1971
1. Number of disputes referred to Central Industrial Relations Machinery	6,731	6,953	6,705
2. Number of failure reports received:—			
(i) of (2) above. No. of disputes referred to adjudication	323 (37+)	297 (31+)	368 (38+)
(ii) of (2) above. No. of disputes referred to arbitration	70 (80+)	55 (60+)	13 (10+)

Apart from the Central legislation, some of the State Governments, namely, Bombay, Madhya Pradesh and Uttar Pradesh had also taken statutory measures for prevention and settlement of industrial disputes. These, while containing most of the basic features of the Central Act, sought to supplement them in certain respects.

The First Plan: The Central Act was amended from time to time to take care of deficiencies in its working as also to suit requirements of planned development. The First Plan, for instance, recommended the framing of suitable statutory provisions on the following principles:

(i) legal technicalities and formalities of procedure should be reduced to the minimum;

(ii) the machinery and procedure should be adopted to varying needs;

(iii) selection, recruitment and training of personnel of courts should be carried out to secure competent disposal of cases;

(iv) there should be no appeal from decisions of an industrial court or tribunal save in exceptional cases; and

(v) provision of law should be adequate to secure prompt compliance with the term of any award of decision.

The amended Act, therefore, provides for a three-tier system of original tribunals, consisting of Labour Courts, Industrial Tribunals and National Tribunals. The function of the Labour Courts is mainly to adjudicate upon certain minor matters. The jurisdiction of the Industrial Tribunals is wider and extends to more important matters like wages and allowances, hours of work, leave and holidays and bonus. The National Tribunals may be appointed by Central Government to decide disputes which involve questions of national importance and those which affect establishments situated in more than one State. In this process, the Labour Applellate Tribunals, which was brought into existence by an amendment of the Industrial Disputes Act in 1950 to bring about uniformity in Industrial Tribunal decisions was abolished. By an amendment made in 1952, the appropriate Government has been empowered to include within the scope of general adjudication even units in which no disputes might actually exist. A provision has also been made in the Industrial Disputes Act for voluntary reference of disputes to arbitration by the parties themselves by written agreement and for the enforcement of voluntary agreements reached between the parties. A special feature of the Act is the provision made for lay-off and retrenchment compensation by an amendment carried out in 1953. This again was to answer the specific need of the hour when lay-off and retrenchment had affected the climate of industrial relations and some effective action was considered necessary against them.

The Second Plan: Apart from the reorganization of the industiral disputes settlement machinery to which a reference has been made earlier, the First Plan also made specific recommendations regarding the need for avoidance of industrial disputes, promotion of internal settlements, mutual consultation through various committees, collective bargaining, conciliation, etc. Much of what was recommended in the First Plan also held good in the Second Plan. The Second Plan recommended, in particular, the following:

(i) "Greater emphasis should be placed on avoidance of disputes at all levels, including the last stage of mutual negotiations, namely conciliation.

(ii) "Once dispute arose, recourse should be had to mutual negotiations and voluntary arbitration in the machinery for facilitating these stages should be built up by Central and State Governments .. However, in intractable cases, where these methods fail recourse to Government intervention would be unavoidable.

(iii) "While the responsibility for implementation should be mainly on the employer (public or private) an appropriate tribunal

should be constituted for enforcing compliance.

(iv) "While observance of stricter discipline both on the part of labour and management is a matter which cannot be imposed by legislation — it has to be achieved by organisations of employers and workers by evolving suitable sanctions of their own, some steps legislative or otherwise in case of rank indiscipline to be thought off".

The emphasis was thus on prevention of disputes. But once a dispute arose, it was to be settled by mutual negotiations and recourse to adjudication was thought of only as a last resort. In addition, the Plan recommended the greater association of workers with management and their education to make them better citizens.

Code of Discipline in Industry: Most of the important recommendations made in the Second Plan were given effect to by the decisions taken at the 15th session of the Indian Labour Conference held in July 1957. This marked another important stage in the evolution of labour relations policy is India in a number of vital and far-reaching decisions were taken at that session. The session unanimously adopted a code called the 'Code of Discipline in Industry'. The code aims not only at the prevention of industrial disputes, but also at the creation of a suitable atmosphere for constructive co-operation between employers and workers. The significance of the code lies in its voluntary acceptance of mutual obligations. It places greater reliance on moral sanction than on legislation. The provisions of the code cover the entire field of industrial relations like the prevention and settlement of disputes, discipline at the plea of work, avoidance of work stoppages, implementation of the awards, agreements, settlement and decisions, avoidance of litigation, etc. The code required the framing of a model grievance procedure to minimize delays in the settlement of grievances.* A Central tripartite evaluation and implementation machinery has been set up to implement the code. Similar machinery exists at the State levels also.

On the voluntary side, the 'Code' of Discipline in Industry (1958) and the Industrial Truce Resolution (1962) continued to have their impact on industrial relations in the country. This is reflected in the data given in Table IV.

Worker Participation in Management and Workers' Education: As the objective of social and economic policy, the Second Plan referred to the need for creation of industrial democracy as a pre-requisite for the establishment of a socialistic society. As a first step in this direction, it recommended the increased association of labour with management.

*See Appendix I

It further observed that such a measure would help in "(a) promoting increased productivity for the general benefit of the enterprise, the employees and the community, (b) giving employees a better understanding of their role in the working of the industry, and (c) satisfying the workers' urge for self-expression, thus leading to industrial peace, better relations and increased co-operation." For this purpose, it suggested the setting up of Joint Management Councils consisting of representatives of employers and workers. Such councils are already operating in 80 units.

TABLE IV

	1969	1970	1971
1. Number of complaints received	609	696	306
2. Number of complaints not requiring action	240	186	47
3. Number of complaints requiring action	369	510	259
4. Of these requiring action (percentage of complaints)			
(a) Not substantiated on enquiry	6	3	2
(b) When the breaches were set right or settled otherwise	34	9	13
(c) Under investigation	60	88	85

The scheme of Joint Management Councils is designed to ensure closer and fuller association of workers in management on a voluntary but formally-defined basis. Such councils were functioning in 80 establishments, 31 in the public and 49 in the private sectors. The break-up of the units where Joint Management Councils were functioning during 1971-72 is as follows:

TABLE V

	Public Sector	*Private Sector*	*Total*
1. Manufacturing	9	33	42
2. Mining	13	13	26
3. Plantations	..	2	2
4. Service Industries	9	1	10
Total:	31	49	80

The aim of the concurrent scheme of workers' education was to educate the workers in their rights and responsibilities *vis-a-vis* production and for the better performance of their duties as citizens. It was also designed to enable them to participate intelligently in the scheme of worker participation in management. The scheme comprises the training of teacher-administrators and worker-teachers. The latter, on returning to their establishments on the completion of the training, start unit level classes for the rank and file. Substantial progress has been achieved under this scheme.

The Third Plan: The Third Plan did not suggest any major change in policy. It emphasized the economic and social aspects of industrial peace and elaborated the concept that workers and managements were partners in a joint endeavour to achieve common ends. The voluntary arrangements agreed to in the Second Plan were strengthened by the Industrial Truce Resolution, 1962, adopted in the wake of the Chinese Aggression. The Industrial Disputes Act was amended in 1965 with a view to giving an individual worker the right to raise a dispute connected with his discharge, dismissal, retrenchment or termination of service even if the cause of the individual workman was not espoused by any union or group of workmen.

Workers' Organizations: The evolution of the labour relations' policy of a country is conditioned by the existence of strong organizations of employers and workers. A strong trade union movement is necessary to safeguard the interests of labour and to achieve increased production and productivity. Workers in India have been exercising their right of association since the turn of the century but real encouragement to the movement came through the Indian Trade Unions Act, 1926. With some minor modifications, the Act still holds the field. While a number of trade unions were formed between 1926 and 1947, the real organizational effort on behalf of labour was seen only since independence. The number of registered trade unions increased from 2,800 in 1947-48 to 11,677 in 1961-62. The membership of the unions which furnished returns also increased in the same period from 1.7 to 4.0 million in 1960-61. While the number of trade unions and their membership has gone up during the 15 years, the number of members per trade union has declined.

The number of unions claimed and verified by the Indian National Trade Union Congress in 1966 was 2,046 and 1,305 respectively; that for the Hind Mazdoor Sabha was 498 and 258 respectively; and for the United Trade Union Congress 364 and 170 respectively. For details of the membership of the 4 Trade Unions and their membership for the period 1951-67, the following Table may be seen:

TABLE VI

Membership of Trade Union Organization (1951-1967)

	Indian National Trade Union Congress		*All India Trade Union Congress*		*Hind Mazdoor Sabha*		*United Trade Union Congress*	
Year	*Affiliated Unions*	*Membership*	*Affiliated Unions*	*Membership*	*Affiliated Unions*	*Membership*	*Affiliated Unions*	*Membership*
1951	1,232	1,548,568	736	758,314	517	804,337	332	384,962
1956	604	930,968	481	306,963	157	211,315	228	195,242
1961	860	1,053,386	886	508,962	190	286,202	229	110,034
1967	1,305	1,417,553	808	433,564	258	436,977	170	93,454

A feature of the trade union movement in India is its dependence, to some extent, on outsiders for leadership. This has had both beneficial and harmful effects. But f the outside leadership, the movement would not have reached even its present dimensions and strength. At the same time, the association of outsiders has generated unhealthy rivalries. However, of late, a trend towards decrease in the number of outsiders managing trade unions is clearly discernible. It is hoped that Workers' Education Programme will accelerate this progress. The movement is at present affiliated to the four following main organizations of workers: (i) The Indian National Trade Union Congress which has the largest verified membership; (ii) The All-I dia Trade Union Congress, (iii) The Hind Mazdoor Sabha, and (iv) The United Trade Union Congress. To remedy the evils of a divided Trade Union Movement, a code, called the 'Inter-Union Code of Conduct' was voluntarily accepted in 1958 by all the Trade Union organizations as a complement to the Code ot Disipline in Industry. The Code of Conduct aims at the promotion of harmonious inter-union relation and healthy growth of trade union movement.*

Employers' Organizations: The employers are organized industry-wise and also region-wise. There are, for instance, employers' organizations for textiles, tea, coffee, mining, engineering and so on, in centres where their special interest requires protection. Chambers of Commerce or business associations functioning in important cities and trade centres bring together varied interests among the employers' organizations. Those associatons, however, form an integral part of the national organizations, such as the All-India Organization of Industrial Employers, the Employers Federation on India and All-India Manufactures Organization. These organizations, as also the workers' organizations referred to earlier, are recognized by the Government and participate in the discussions at the national level. In additon to these, there are also professional bodies like the Indian Institute of Personnel Management in Calcutta, the National Institute of Labour Management in Bombay which spread ideas concerning the importance of human values in industry and promote healthy labour-management relations.

IV. Wages and Social Security

In countries where the employers' and workers' organizations are well matched, wage agreements are arrived at on the basis of collective bargaining. While this approach is prevalent in India where unions are strong, the dominant pattern for wage settlement is through State intervention which during World War II, secured for workers some

*See Appendix II

wage increases. Even so in real terms, the situation had deteriorated as compared to the pre-war because of the rise in prices. In the absence of guiding principles, the wage awards of those days were based on the individual judgement of adjudicators and the conditions prevalent in individual units. In consequence, a number of anomalies crept in the wage structure. The task in the post-war period, therefore, was to secure the 1959 level of real earnings and simultaneously proceed in the direction of evolving a scientific wage pattern.

Wage Policy: Since 1948, wage standardization has been secured in almost all important organized industries mainly through the efforts of Industrial Tribunals, — except in recent years when wage boards have become more common. A vital component in addition to the basic wage since World War II has been the dearness or cost of living allowance. The system of paying a bonus to workers, which also started during the World War II in certain industries, has now become an accepted annual addition to the pay packet.

The First Plan: Subject to reasonable restraints on wages and profits, the main aim of wage policy was to "restore the pre-war real wages, as a first step towards the living wage, through increased productivity resulting from rationalization and renewal or modernization of plant." Wage increase to remove anomalies or where the existing rates were abnormally low was also not ruled out. In settling wage claims, it was recommended in particular that:—

(i) wage adjustments should conform to the broad principles of social policy and disparities of income have to be reduced to the utmost extent;

(ii) the claims of labour should be dealt with liberally in proportion to the distance which the wages of differed categories of workers have to cover to attain the living wage standard; and

(iii) the process of standardization of wages should be accelerated and extended to as large a field as possible.

The working of the wage policy in the First Plan resulted in substantial gains to the industrial workers. For the first time, the wages of workers reached the pre-war level in 1953 and even went beyond significantly by 1955. The improvement in real wages was due partly to the increase in money earnings which went up by about 20 per cent over the period and partly to the fall in the price level.

The Second Plan: It was framed in the atmosphere of increasing unemployment and which emphasized the need for developing basic industries, recommended a cautious wage policy directed towards avoiding inflationary pressures. It admitted that much remained to be done

especially in matters like covering the distance between the existing wage and 'fair wage', but progress in this regard would only be gradual. It said the evolution of a wage policy which aimed at a structure with rising real wages required to be evolved. The drag exercised by the marginal units in drawing a suitable wage structure based on the principle of fair wage, was recognized and steps to make these units more viable were recommended. Several recommendations to improve productivity, like introduction of incentive payments, payment by results, rationalization etc., were also made. The Plan further stated that "a more acceptable machinery for settling wage disputes will be one which gives the parties themselves a more responsible role in reaching decision. An authority like a Tripartite Wage Board, consisting of equal representatives of employers and workers and an independent Chairman will probably ensure more acceptable decision. Such Wage Boards should be instituted for individual industries in different areas."

In pursuance of the recommendation made in the Plan, a number of Wage Boards were set up during the Second Plan. These covered major industries like cotton textiles, cement, sugar, jute and tea plantations. The final recommendation of the first three were received before the expiry of the Second Plan period and their implementation started from 1960. Almost all the units in those industries have by now implemented these recommendations. The other Wage Boards and those constituted since have completed their work. The impact of the policy pursued in the Second Plan resulted in an increase in money wages by about 19 per cent during the period. However, in real terms, the workers suffered as compared to the First Plan due to increase in the price level.

The Third Plan: The policy in regard to wages in the Third Plan was more or less an extension of the policies pursued in the two previous Plans. Recognizing the need for rapid economic progress, the Plan suggested that the fruits of economic progress should be shared equitably and that economic and social organizations should be oriented towards achieving the objectives of a socialist society. In particular, it was stated that the surpluses generated in industry were a social product to which neither employers nor workers could lay an exclusive claim, their distribution must be according to the worth of the contribution of each, subject to the needs of development and the well-being of all sections of the community, especially the satisfaction of the basic needs of all. The need for improving productivity both in the context of larger economic programme and the improvement of the standard of living of the working class was highlighted in these words: "Neither the exercise of their organized strength in industrial conflicts nor laws and the intervention of State can help the workers much in realizing their aspirations. Their gains can arise only out of the strength and dynamism of the econo-

my, the only enduring basis of which is a rising level of productivity. No increase in profits which does not come out of improvements in productivity but has its origin in current scarcity and the stresses of development, can be regarded as a sign of prosperity. For the workers no real advance in their standard of living is possible without a steady increase in productivity, because any increase in wages generally, beyond certain narrow limits, would otherwise be nullified by rise in prices."

The First Plan recommended that wage increase should be granted mainly to remove anomalies or where the existing rates were very low. It also recommended restoration of the pre-war levels of real wages as a first step towards a 'living wage'. These features were reasserted in the Second Plan, but a shift in emphasis was introduced: it required that improvement in wages should result mainly from increased productivity. Two developments during this period are worthy of note: (i) the recommendation of the 15th Indian Labour Conference in regard to the need-based minimum wage, and (ii) the Report of the Second Pay Commission in respect of Central Government employees, whose recommendations about the need-based minimum wage created public controversy. The Third Plan generally endorsed the recommendations of the earlier Plans in regard to the minimum wage with the proviso quoted above.

By 1970, all the Wage Boards which had been set up in the previous years had submitted their reports, and Government decisions on these reports have been announced. This completed the process of wage fixation in all the major industries for which Wage Boards were set up since the inception of the system in 1957.

Bonus Commission: Apart from the setting up of new Wage Boards already referred to a significant step taken during the Third Plan was the setting up of the Tripartite Bonus Commission to study the problems connected with bonus claim and to evolve guiding principles for bonus payment. The commission which submitted its report in 1964 has recommended in particular:—

(i) That the surplus available for payment of bonus should be determined after providing for depreciation, income tax, super tax and returns on paid up capital at 7 per cent and on reserves at 4 per cent.

(ii) That an employee should be entitled to a minimum of 4 per cent of his annual earnings made up of basic wages and dearness allowance as bonus or Rs. 40.00 whichever was higher.

(iii) That 60 per cent of the available surplus should be earmarked for the payment of bonus.

(iv) That the maximum limit for the payment of bonus should be 20 per cent of the earnings by way of basic wage and dearness

allowance.

The commssion has also made detailed recommendations in regard to the employees to whom their recommendations should apply, the maximum bonus payable to certain categories of employees, the manner of providing for set off and set on, etc.

The Payment of Bonus Act, 1965, was enacted very recently. It must be given a longer period of trial. Some workers' organizations have objected to the coverage and quantum of the available surplus. Bonus payment already covers a large number of workers coming under the Industrial Disputes Act of 1947 who formerly did not have this benefit. Also, the available surplus for bonus payment has already been enlarged by the recent amendment to the Payment of Bonus Act, 1965. Calculations made at the official level indicate that the additional amount disbursed in bonus as a result of the implementation of the Payment of Bonus Act is about Rs. 16 crores and the tax loss about Rs. 8 crores annually.

One of the significant achievements during 1971 was an agreement brought about between the workers and employers on the question of bonus for the year 1970. The agreement *inter-alia* provided for the payment, in addition to the statutory minimum bonus, a graded advance ranging from 1 to 4½ per cent based on the gross profits earned. The advance was to be adjusted against future payments of bonus payable subject to decisions on the recommendations of the 'Committee on Bonus' to be set up for the purpose. The setting up of a Tripartite Committee to go into the whole question of bonus was endorsed at the 27th Session of the Indian Labour Conference held in October 1971. The composition and terms of reference of the committee are expected to be announced soon.

It will now be useful to study the changes in money and real earnings in recent years for certain categories of workers. The Table VII gives the indices of money and real earnings of industrial workers since 1947. Although a strict year-to-year comparison is vitiated to some extent by changes in scope, coverage etc., these figures give a fairly accurate picture of the gains accruing to labour since independence. The indices relate to average annual earnings of employees earning less than Rs. 200 per month in factories covered under the Payment of Wages Act, 1936.

The money earnings of workers in the manufacturing sectors have gone up by 71 per cent in 1970 as compared to 1961. The real earnings rose only by 1 per cent during the same period. The latest available data for 1970 shows that in 1970, the real as well as money earnings of those workers had increased by 6.9 per cent and 7.4 per cent respectively as compared to the level in the previous year.

Coal Miners: A long history of wage disputes in coal mining came to

an end with the enforcement of the award of the All-India Industrial Tribunals (Collieries). The Coal Tribunals' award which came into effect from about the middle of 1956, recommended increase in the wages of different categories of workers. Since then, employers and workers have shown considerable wareness of their responsibilities and the industry has been working with an improved level of efficiency. A Tripartite Wage Board was set up in 1963 to analyse the wage structure etc., in coal mining. An interim increase in wages was recommended by the Wage Board. An indication of the gain made by the coal mine workers since independence can be had from the Table VIII which gives the indices of money earnings of workers employed in mines.

TABLE VII

Indices of Money Earnings and Real Earnings of Employees Earnings Rs. 200 Per Month in Factories Covered by the Payment of Wages Act, 1956 (1947=100)

Year	*Money earnings*	*All-India average consumer price index*	*Real earnings*
1948	120.0	111.7	107.4
1949	134.4	115.0	116.9
1950	132.0	115.8	114.0
1951	140.9	120.8	116.6
1952	150.9	118.3	127.6
1953	151.0	121.7	124.7
1954	151.8	115.8	131.1
1956	159.4	110.0	144.9
1956	162.6	120.8	134.6
1957	170.2	127.5	133.5
1958	172·3	133.3	129.3
1959	178.1	139.2	127.9
1960	189.4	142.5	132.9
1961	193.7	145.0	138.9
1962	204.3	149.6	135.6
1963	206.0	154.1	132.7
1964	214.7	144.8	148.3

TABLE VIII

Indices of Money Earnings of Workers Employed in Mines during December Each Year on Base: 1947=100

1947	100.0	1955	132.4
1948	105.5	1956	173.0
1949	109.7	1957	192.6
1950	114.3	1958	105.6
1951	120.5	1959	220·6
1952	127.4	1960	228.5
1953	127.2	1961	238.6
1954	129.9	1962	246.9

In the mining sector also, the money earnings and real earnings of workers had increased by 96 per cent and 16 per cent respectively in 1969 as compared to 1961.

Central Government Employees: The pay and service conditions of Central Government employees come up for review by the First Pay Commission in 1946-47. Prior to this, for about 30 years the basic

structure of salaries of Government servants continued to conform to the pattern recommended by the Royal Commission on the Public Services in India (1912-15). The Royal Commission on the Superior Civil Service in India (1923-24) expressed full agreement with the principles adopted by the earlier commission. With the passage of time, a necessity arose to review the pay and service conditions of Central Government employees and accordingly a Second Pay Commission was set up in 1957 to:—

(i) "Examine the principles which should govern the structure of emoluments and conditions of service of Central Government employees" and

(ii) "Consider and recommend what changes in the structure of emoluments and conditions of service of different classes of Central Government employees are desirable and feasible."

In making their recommendations, the Commission was to take into account the historical background, the economic conditions in the country and the implications and requirements of developmental planning, and also the disparities in the standard of remuneration and conditions of service of the Central Government employees, on the one hand, and of the employees of State Governments, local bodies and aided institutions, on the other, and all other relevent factors.

The Commission made detailed recommendations in 1959 in regard to the various matters referred to it and those come into effect on July 1, 1959. The present wage structure and service conditions of Central Government employees are the outcome of those recommendations. Some State Governments have also followed the Central Government and had the wage structure etc. of their employees examined by competent bodies.

The Government announced on April 30, 1970, a 5-member Third Pay Commission for Central Government employees. This Commission was asked to enquire into and make recommendations regarding—

(i) the principles which should govern the structure of emoluments and conditions of services of Central Government employees;

(ii) what changes in the structure of emoluments and conditions of service of different classes of Central Government employees were desirable and feasible;

(iii) death-cum-retirement benefits of Central Government employees;

(iv), (v) & (vi) the same for all-India services; personnel belonging to armed forces; and employees of Union Territories;

(vii) while inquiring into the level of minimum remuneration, the Commission may examine the Central Government employees' demand for a need-based minimum wage, having regard to all relevant factors.

In case the need for consideration of relief of interim character arises during the course of the deliberations of the commission, the

commission could consider the demand for relief of an interim character and send reports.

Under this provision, the Commission did recommend two Interim Reliefs till the end of 1972, and the Government accepted the recommendations.

Banks: The award of the First Pay Commission had its impact on the pay and service conditions of bank employees who were placed more or less in a similar position as the Central Government servants. In particular, in the year following independence, the white collar group in different industrial and commercial employments started building up its own organizations and a number of wage disputes in banks, insurance companies and important commercial houses were settled directly or through the machinery of conciliation and adjudication provided by the Government but by themselves; these did not help in a uniform determination of wage level in the banking industry. Starting with the Sen Tribunal in 1949, the demands of the bank employees were examined by several agencies like the Sastry Tribunal in 1952, the Labour Appellate Tribunal in 1954 and the Bank Award Commission in 1955. The recommendations of the Commission were embodied by the Government in the Industrial Disputes (Banking Companies Decision) Act, 1955, which remained in force till March 31, 1959. The Government, thereafter, constituted the National Industrial Tribunal (Bank Disputes) in 1960 to adjudicate on the dispute between the banks and their employees. The Tribunal by its award in June 1962 divided the banks into three categories and the country into three areas and recommended pay scales for various categories of staff separately for each class of bank and the area in which it was located. To compensate for a rise in prices, it recommended a system of dearness allowance linked with cost of living index with a 100 per cent neutralization for subordinate employees and smaller for others. Recommendations were also made about provident fund, gratuity, pension, retirement age and special allowance for some categories of workmen. The award was accepted in full by the Government.

Working Journalists: The lack of a standardized wage structure and the consequent discontent for working journalists led to the appointment of Wage Board for them in 1957. The recommendations of the board were set aside by the Supreme Court on the ground that they did not take into account the paying capacity of the industry. As a result, a committee was set up in 1958 to examine the wage scales. The committee's report was implemented in 1959 with some modifications. A Wage Board was appointed in 1963 to examine afresh the structure of wages in this industry.

Agricultural Workers: The difficulties in securing minimum wages in agricultural occupations is well recognized. It has, therefore, been considered that a selective approach might help in achieving enforcement of wage standards. To permit such selection, the Minimum Wages Act was amended to enable the State Governments to fix wages for certain categories of agricultural workers and in selected areas of each State, where the wage level was considered to be abnormally low. Several State Governments had already fixed minimum wages in agriculture on this pattern. The wage rates for persons employed in agricultural occupations vary from place to place. To obtain useful information regarding the wages, employment, etc. of agriculture workers, two enquiries were conducted, the first in 1950-51 and the other in 1956-57. A close scrutiny of the data thrown up by those enquiries revealed that there was no marked deterioration or improvement in the economic conditions of agricultural labour households in 1956-57 as compared to 1950-51. It would thus appear that the Plan objective of improving the conditions of the lowest stratum of the community has not been achieved during the period covered by the two enquiries.

Among the unorganized groups, agricultural labour is the most important. The benefits of general economic development have not reached this group of workers to any appreciable extent. The draft Fourth Plan provides for various programmes for improving the lot of agricultural workers. The Department of Labour and Employment have proposed action programmes for promoting welfare of agricultural workers through Model Welfare Centres, Mobile Health Units, Shop-cum-Cinema Vans, etc., and for setting up an advisory service on the lines of the Factory Advice Service, to undertake work study in the field of agriculture to afford facilities of training and assistance to agricultural labour to attend to the problems of safety, hygiene, etc. A beginning will be made with work on these lines consistent with the funds that could be made available for this purpose.

Wage Census: On the recommendation of the Second Plan, an occupational wage survey was conducted during 1958-59. The survey throws light on the numerical aspect of employment according to the representative occupatonal groups and their employment status, wages and earnings, concentration and dispersion according to sex groups, time and piece work, job description, wage differentials, etc. It is expected that the information thus collected would be of immense use to the wage fixing authorities and may provide the basic material for defining and establishing suitable relationships between workers, jobs and groups of jobs. The census covered 37 factory industries, three plantations and four mining industries. These together represent approximately 76 per cent of employment in factories, nearly the whole of plantations

and 85 per cent in mining. The General Survey Report has been published along with reports covering all the 44 industries.

The second Occupational Wage Survey was conducted during September 1964 and February 1965 and the data collected by it were scrutinized, coded and preliminary tabulations completed. In August 1968, it was decided that tabulation of the data in respect of the Survey should be done by the Machine Tabulation Unit of the Bureau. Accordingly, preparation of the detailed instructions for estimation procedure to be adopted for different items of information was started and the major portion of this work had been completed by 1970.

Social Security: The successful working of the social security schemes in other countries provided the necessary impetus and guidance for the introduction of social security schemes in India. The earlier measures for ensuring social security to workers include legislation providing for workmen's compensation for all workers and maternity benefits for women workers. The employer was held responsible for the payment of compensation to workers, according to a fixed schedule in cases of incapacity, permanent disability and death. The payment of maternity benefits to women workers is governed by State enactments. In order to bring about uniformity in maternity benefits available under different enactments, the Central Government passed the Maternity Benefit Act, 1961. The Act is applicable, in the first instance, to mines, plantations and factories covered by the Employees' State Insurance Act. It incorporates the important progressive measures included in all the then existing acts on this subject.

Employees' State Insurance: The passing of the Employees' State Insurance Act, 1948, was another significant step taken towards provision of social security measures. The Act enabled the factory worker to obtain sickness, maternity, disablement, medical and dependent benefits. Provision also exists for availing himself of free consultation, medicines, specialist treatment, artificial limbs, dentures, spectacles, etc. The scheme, which originally covered workers in some important industrial centres like Bombay, Calcutta and Kanpur, has been gradually extended as indicated at the end of this Section.

Under the Employees' State Insurance Scheme, the total number of employees covered was 38.61 lakhs in 333 centres as on December 31, 1971. There are so far 44 full-fledged Employees' State Insurance Hospitals with 6,666 beds, 20 annexes with 461 beds, and 137 State Insurance Dispensaries functioning in the E.S.I. Corporation buildings. Besides, 15 Employees' State Insurance Dispensaries with 2,463 beds, 2 annexes with 42 beds, and 18 State Insurance Dispensaries were under different stages of construction. In all, 10,147 beds are now available for

the use of insured persons and their families. The total number of beneficiaries of medical benefit, as on December 31, 1971, was 163.70 lakhs.

Provident Fund: The introduction of the scheme of Contributory Provident Fund in 1952 was another important step towards the provision of adequate social security to industrial workers. The scheme was initiated in the coal mines in 1947. Since the enactment of the Employees' Provident Fund Act, 1952, the Provident Fund Scheme has been introduced in the industrial establishment employing 50 or more persons in the initial stage. It provided for a contribution on the part of both of employers and workers at the rate of 6¼ per cent of wages and dearness allowance. In 1958, the distinction between public and private undertakings was abolished, while in 1960 the employment limit was reduced to 20. Originally the scheme was applicable to six industries, but it was gradually extended to 84 industries covering 2.51 million workers by the end of 1963. The Employees' Provident Fund Act. 1952, was amended in 1971 to provide for the benefit of family pension to its members. The Act, in the amended form, is now called the Employees' Provident Fund and Family Pension Act, 1952. It has been extended to 126 classes of establishments/industries by the end of 1971. The number of subscribers as on September 3, 1971, was 60.51 lakhs was against 57.40 lakhs on September 30, 1970. The enhanced rate of contribution of 8 per cent was applicable to 92 industries/classes of establishments. The total contribution to the Fund collected in both exempted and unexempted establishments (including interest and other receipts) was Rs. 2,091.42 crores as on September 30, 1971. The amount refunded by the same date was Rs. 770.96 crores (progression). The rate of interest to be credited on the contributions to the Fund by the members was raised from 5.7 per cent for 1970-71 to 5.8 per cent for 1971-72.

The Family Pension Scheme framed under the Employees' Provident Fund and Family Pension Fund Act, 1952, and introduced from March 1, 1971, is financed by diversion of a portion of employers' and employees' contributions to the Fund amounting to 1.1/6 per cent of worker's total emoluments, with a matching contribution by the Central Government. In the event of premature death while in service, the worker's family is entitled to pension and life assurance benefits. In the event of retirement, the member is entitled to a lump sum payment. From January 1, 1964, a scheme of Death Relief Fund was introduced with the object that the widow and children of the worker, in the event of his sudden death, should get a minimum of Rs. 500/- even if the contributions of the worker and the employer concerned fell short of Rs. 500. The limit was raised to Rs. 750 on August 1, 1969, and the benefit is now given to the nominees/heirs of such persons whose pay

does not exceed Rs. 500 per month at the time of death. Under the Provident Fund Scheme non-refundable advances are permitted for the life insurance premia, house building, relief during lock-outs or closures, purchasing share of consumers co-operative societies, etc. Apart from these, the Provident Fund serves the purpose of channelizing the savings of the working class for developmental purposes under the Plan and helps to check consumption.

Gratuity: Gratuity is another measure of social security. At present, however, it is left either to the parties to negotiate the quantum of gratuity or for industrial tribunals to award it when specific disputes are referred to them. The practice, however, is not widespread, but in cases where gratuity was awarded, was linked with the years of service put in by a worker with an employer, subject to a certain maximum.

Lay-off and Retrenchment Benefits: As referred to earlier, there is also a statutory obligation on an employer to compensate workers in case of lay-off and retrenchment. These provisions require that an industrial establishment employing more than 50 workers should pay compensation equal to 50 per cent of the total wage for a maximum period of 45 days in a year provided they have continuous service of 240 days. The Act also lays down that when a worker has put in a year's continuous service or more, he should be entitled to a month's notice before retrenchment, or payment in lieu of such notice in addition to gratuity.

Integrated Social Security: From the foregoing account, it will be clear that Government has taken steps to provide a measure of social security for different sections of the working class. If the work of these agencies could be combined under one unified administration, it might be possible to provide better benefits to workers without any extra cost either to employers or workers. Recommenations of the working group specially constituted for the purpose are under examination by Government. A Special Officer was appointed in January 1971 to examine the legal, administrative and organizational matters connected with the integration of social security schemes and to prepare a detailed blueprint of integration. The report of the Special Officer has since been received and is under consideration of the Government.

V. Working and Living Conditions

Congenial working and living conditions play a vital role in promoting labour efficiency, they are a part of improving the conditions of workers, to which the Government's attention is drawn from time to time. The discussion so far covers mainly protection against exploitation and pro-

vision of remuneration as may have a salutary effect on the productive efficiency of the worker. But simultaneously the upkeep of the place of work and machines with which a worker has to operate have to receive attention and so also housing, which forms an important part in the worker's life.

The Government has taken certain legislative measures from time to time to indicate the minimum welfare measures to be provided at the place of work. The Factories Act of 1948, which came into force more or less at the same time as employment in factories came to be recognized as a way of life, seeks to regulate the working conditions at the factory premises. Strangely, the pressure for such legislation came from employers in the U.K., whose competitive capacity was affected by the subnormal working conditions under which manufacturing was possible in India. With the passage of time, this legislation was revised. A major revision was undertaken in 1954, after the Royal Commission on labour made its recommendations. A complete overhaul of the earlier legislation in factories, mines, and new legislation for plantations covering the same ground was undertaken in the early years of independence. The salient features of the important pieces of legislation on the subject and a brief account of what has been achieved in the field of industrial housing and welfare activities are given in the following paragraphs.

Protective Legislation: The Factories Act, 1948 prescribes certain minimum standards of lighting, ventilation, safety, health and guarding machinery to avoid accidents in the course of work. It prohibits the employment of women between certain hours, etc. The Act covers all establishments which use power and employ ten or more persons. It also applies to establishments employing 20 or more persons and not using power. The State Governments have been given power to extend the application of the Act to factories which do not fulfil the above minimum conditions. There is a system of licensing under the Act which requires every factory to register with the State Inspectorate. The Plantation Labour Act. 1951, is another protective legislation brought in for the first time to regulate conditions of work in tea, coffee, rubber and cinchona plantations. There is the usual prohibition of work for children. There are elaborate provisions for laying down standards of welfare, housing, medical facilities and the like. The Mines Act of 1952 regulates the working and safety conditions in mines and provides for the regulation of working hours, over-time payment and holidays with pay. By a separate legislation a labour welfare fund is created for workers in coal and mica mines with appropriate executive agencies to administer the fund.

The Dock Workers (Regulation of Employment) Act 1948 deals with the special problems of dock workers and provides adequate health and safety measures.

There is no central legislation regarding shops and commercial establishments, but most State Governments have legislation in this regard. The implementation of this act is left to local bodies within the State.

Standing Orders: A related enactment is the one that deals with the standing orders which are required to be framed by employers and certified by the authorities after consulting workers. These orders lay down classification of workers, manner of intimating to workmen the period and hours of work, shift working, closing and opening of establishments after temporary stoppage, termination of employment, the definition and procedure to deal with misconduct, means of redress to workers against unfair treatment and so on.

It is useful to bring together the common provisions under all these Acts in an attempt to compare working conditions in different kinds of employments.

Hours of Work: A uniform 48 hour-week has been prescribed for all categories of adult workers employed in seasonal and perennial factories, daily employment not to exceed 9 hours. In the case of children, the working day is only 4½ hours. The provision under the Mines Act is the same as under the Factories Act, except that for persons who work underground, the working hours in a day cannot exceed 8. In plantations, the working week is 54 hours for adults and 40 hours for adolescents. The shops and commercial establishments are required to see that their employees do not work for more than 8-10 hours a day. State Governments are empowered under the Mnimum Wages Act to fix hours of work in scheduled employments and have laid down provisions similar to the Factories Act in such employments. Night work has been prohibited in all these acts for women and children. A minimum rest interval has also been uniformly provided.

Leave and Holidays: The system of paid holiday for workers was introduced in perennial factories in 1945. This privilege was extended to all factories in 1948, to plantations in 1951 and to mine workers a year later. The factory and plantation workers are at present entitled to paid annual holidays at the rate of one day for every 20 days of work for adults and one day for every 15 days of work for children. The Mines Act provides for the grant of 14 days' leave with pay to monthly paid employees and 7 days to others. In most States, employees in shops and commercial establishments are statutorily entitled to weekly holidays, privilege leave and casual leave with pay. In addition to leave with pay, the Standing Orders permit absence on leave without pay to the extent of 30 days. There are also some paid festival holidays in different

States, but the number of these holidays varies from region to region.

Safety, Health and Welfare: Under the Mines Creche Rules 1959 (as amended in January 1966) it is obligatory for the mines managements to provide creches in every mine where women are employed or were employed in any of the preceding 12 months. At the end of December 1969, creches were provided at 384 non-coal mines.

Special care has been taken to ensure better standards of health, safety and welfare of workers during working hours. The Factories Act stipulates the minimum requirements of cleanliness, lighting and ventilation and provides for the disposal of wastes and effluents, the elimination of dust and fumes and the control of temperature in factories. It seeks to eliminate overcrowding by prescribing minimum cubic feet of space for each worker and lays down in detail the precautions to be taken for ensuring safety. Elaborate provisions have also been made in the Mines Act for safeguarding the health and safety of miners. There is a provision for regulating standards of lighting, ventilation etc., in mines. Adequate sanitary arrangements have to be provided for workers in factories, mines and plantations. Wholesome drinking water requires to be provided in every establishment. Because of the nature of their work, plantation workers have to be adequately protected against rain and cold, and this has also been provided under the Act.

Under the Plantation Act, State Governments are authorized to prescribe the standards of medical facilities which the employer must provide. They are also empowered to make rules requiring the provision of recreational facilities for workers. The standards for canteens, recreational and educational facilities which the employers are required to provide have to be prescribed by rules framed by the State Governments.

Apart from these statutory requirements, certain facilities are left for voluntary action, either by Government, employers' or workers' organization or through special agencies like welfare funds financed by special levies. These relate mainly to facilities outside the undertakings, and cover a wide field like programmes for physical fitness and efficiency of workers, health services, social education, community recreation and cultural activities, holiday homes, workers' co-operatives, etc.

The facilities presently being offered to workers by many progressive private sector employers and in places like Chittaranjan in West Bengal, Sindri in Bihar and Perambur in Madras and many similar public sector undertakings maintan the high standards expected of good employers. The old and established railway system has a wide network of hospitals, dispensaries, schools and recreation centres for employees belonging to different cadres.

Some of the well organized trade unions also provide welfare facilities

to workers. Holiday Homes have been opened at some places. The Posts and Telegraph Department has organized clubs, resthouses, canteens, and tiffin rooms for their employees. Night schools have been provided for the benefit of such of the staff as want to take advantage of them. Where it is not possible to construct hospitals, medical aid is provided through dispensaries and by reserving beds in existing hospitals. The working of welfare schemes in the companies and corporations owned or controlled by the Central Government are supervised by Labour Officers drawn from Central Labour Officers Pool constituted by the Ministry of Labour and Employment.

Apart from the provision of welfare facilities, labour has to be protected from environmental hazards. A number of relevant studies have been undertaken recently to assess systematically the health hazards in selected industries which include textiles, tanneries, shellac, chemicals, mica mining and processing, storage battery manufacture. pottery ceramics, etc. These studies and investigations on occupational diseases have considerable educative value for all concerned. An expansion of such activities on the basis that the effort requires the co-operation of various connected disciplines, has taken place with the establishment of the Central Labour Institute, Bombay, and the three regional institutes at Calcutta, Coimbatore and Kanpur.

In addition to the Central Government, most State Governments also run labour welfare centres in places where there is a concentration of industrial and other workers. The field of activity of the different centres varies. But they generally provide facilities for recreation for men, women and children, reading-rooms and libraries, literary classes for workers, educational facilities for workers' children, handicrafts for workers' families, social and cultural activities, etc. Apart from running welfare centres themselves, some State Governments give financial assistance to centres run by trade unions.

Special organizations exist to promote the health and welfare of workers in coal and mica mines. They are financed through a cess levied on the production of these minerals. The Coal Mines Labour Welfare Fund maintains two hospitals, one at Dhanbad and the other at Asansol, and a chain of regional hospitals and dispensaries, maternity and child welfare centres in important coal-fields. Grants-in-aid from the Fund are permissible to dispensaries maintained by employer and public bodies. Anti-malaria operations conducted by the organization have reduced the incidence of malaria.

The Coal Mines Labour Welfare Fund continued to play its part in improving the living and social conditions of coal miners and their dependents. Three Central Hospitals, one each at Dhanbad, Asansol and Mahendragarh with 300, 350 and 50 beds respectively, continued to provide facilities to workes. In addition, 12 Regional Hospitals have

also been functioning in the various coal-fields. The total number of indoor and outdoor patients treated in the hospitals during the year were 42,983 and 238,336 respectively.

Similar organization for mica miners maintains a number of static and mobile dispensaries in mica mining centres. The other activities of these organizations are, first, to run multi-purpose miners' institutes at mica and coal-fields; secondly, to open welfare centres for women and children of miners, and thirdly, to finance adult education activities and to run primary and middle schools for the benefit of the miners' children.

Housing: Apart from the efforts of a few enlightened employers and fewer workers' organizations and certain attempts of Government and local bodies, no co-ordinated action in regard to industrial housing was taken until after 1947. Housing figured prominently in the Industrial Truce Resolution adopted in December 1947, and in 1948 the Government of India announced, as a part of their policy, a scheme for substantial improvement in industrial housing. In 1952, the scheme was revised and a subsidized industrial housing scheme was introduced. Under this scheme, loans were given by the Centre to meet a part of the cost of construction. State Governments, employers, statutory housing boards and co-operative house building societies of industrial workers were eligible for such assistance. By the end of the Second Plan, the construction of about 140,000 tenements costing Rs. 45 crores was approved. About one hundred thousand houses were completed and the rest were at different stages of construction. A further provision of Rs. 32.86 crores was made in the Third Plan with a target of another 80,000 houses.

Under the Annual Plan for 1966-67, an outlay of Rs. 24.06 crores for housing was proposed. The reduced outlay was due to the general directive that housing programmes should be slowed down during the Emergency so as not to draw heavily on the financial resources as well as on building materials required for other emergency needs. During 1966-67, the main effort would be to complete schemes in hand for which commitments have been made. Practically, no new schemes of construction would be undertaken during 1966-67.

Apart from the subsidized industrial housing scheme, the Government of India have other housing projects like the Low Income Group Housing, Village Housing, Plantation Labour Housing, Dock Labour Housing, etc. So far as industries in the public sectors are concerned, whenever a decision to set up a unit is taken, financial provision is made for adequate housing. The housing of plantation workers received considerable attention in 1950. A phased programme of providing houses of reasonable standard by the end of 1960 was accepted by em-

ployers and carried out in larger measure. The Coal and Mica Mines Welfare Funds set apart large sums specifically for housing for miners. Subject to the availability of building materials, fair progress has been achieved in this field since independence.

The up-to-date positon regarding the housing facilities for coal-field workers is given below:—

TABLE IX

	Number of houses constructed upto 31.12.69	*Number of houses constructed upto* 21.12.70	*Number of houses constructed upto* 31.8.71
1. New Housing Scheme	37,149	40,289	41, 627
2. Low Cost Housing Scheme	16,424 houses 117 barracks	17,375 houses 142 barracks	17,964 houses 146 barracks

A few States also provide housing facilities for agricultural workers. In Madhya Pradesh, for instance, free house sites are given to agricultural workers. In Tamil Nadu and Andhra, agricultural workers are being provided with similar facilities. The Government of Bihar have a scheme for the construction of houses for landless workers. Improvement in rural housing standards was also a part of the comprehensive rural development programme of the Ministry of Community Development. To provide the necessary technical assistance, a rural housing cell was established by the Central Government in the appropriate Ministry. Similar cells were also set up at the State level.

Housing Co-operatives: To encourage self-help in housing, the Government provides developed plots at a small charge, arranges for advice on techniques of house construction to workers or groups of workers and permits small loans for the purchase of materials. This scheme has proved popular in some States and has been a help in the programme of slum clearance.

The Industrial Housing Scheme: Achievements under the Industrial Housing Scheme in the First, Second and Third Plans were 57 per cent, 97 per cent and 71 per cent respectively. The main factors that impeded progress were reported to be (i) low priority given by the State Governments to housing projects *vis-a-vis* other development schemes, (ii) non-utilization of even the small allocations made, (iii) diversion on funds to meet other urgent needs, (iv) scarcity of developed land in urban areas, (v) high cost of building material, and (vi) lack of capacity of workers to pay even the subsidized rents.

Out of the total of 159,871 houses built under the scheme till the end of 1967, only 30,498 (19 per cent) had been built by the employers. This explains in part the tardy progress of the scheme. Some of the employers' difficulties were genuine but the response from them has conti-

nued to be discouraging. The original Subsidized Industrial Housing Scheme has been integrated with the housing programme for the econonomically weaker section of the community since April 1966 and is now known as the Subsidized Housing Scheme for Industrial Workers and Weaker Sections of the Community.

To sum up, labour relations continued to be regulated by the protective legislative measures introduced in earlier Plan periods and the tripartite arrangements. Special mention should be made of the Payment of Bonus Act of 1965, Shops and Commercial Establishments and Labour Welfare Fund Acts in States. A National Safety Council was set up in 1966. Out of the 22 Wage Boards set up covering almost all major industries, 17 have put in reports. Under the Minimum Wages Act of 1948, minimum wages are fixed and periodically revised by State Governments in respect of various agricultural and other trades. A National Commission on Labour was set up in December 1966, to study and make recommendations on various aspects of labour including wages, working conditions, welfare, trade union development and labour management relations.

The National Commission on labour submitted its report to Government on August 28, 1969, and made 300 recommendations/observations covering practically the whole gamut of labour policy and administration. The recommendations of the National Commssion on labour were examined and decisions have been taken by Government in respect of 193 out of 300 recommendations of the Commission. With a view to arriving at some broad agreement between the employers and the workers on some of the principal recommendations, the Government organized two separate conferences, one with the employers and the other with the workers in May 1971. Although no specific conclusions could be reached at these conferences, the views expressed therein formed a basis for further discussion at the 27th Session of the Indian Labour Conference which was held in October 1971.

VI. Labour Administration

With a view to implementing the legislative measures passed on such matters, administrative machinery exists both at the Centre and at State level. The functions of each are discussed separately in the following paragraphs.

Central Machinery: The responsibility of the Ministry of Labour and Employment, in respect of the Union list in the Constitution, is full and direct. The activities of the Ministry of Labour and Employment in regard to 'Concurrent' subjects cover laying down policy and co-ordination, control and direction.

The Ministry of Labour and Employment, as at present constituted, consists of the main Ministry (Secretariat) and the following attached and subordinate offices—(i) Directorate-General of Employment and Training, New Delhi, (ii) Labour Bureau, Simla, (iii) Office of the Chief Labour Commissioner, New Delhi, (iv) Office of the Coal Mines Welfare Commissioner, Dhanbad, (v) Office of the Coal Mines Provident Fund Commissioner, Dhanbad, (vi) Office of the Welfare Commissioner, Mica Mines Labour Welfare Fund, Dhanbad, (vii) Office of the Chairman, Mica Mines Labour Welfare Fund Advisory Committee for Andhra, Nellore, Bhilwara and Rajasthan, (viii) Office of the Chief Inspector of Mines, Dhanbad, (ix) Office of the Chief Adviser Factories, New Delhi; (x) Office of the Controller of Emigrant Labour, Shillong, (xi) Office of the Director General Employee's State Insurance Corporation, New Delhi (Autonomous Body), (xii) Office of the Central Provident Fund Commissioner, New Delhi, (xiii) Gorakhpur Labour Organisation, Gorakhpur. and (xiv) Central Board for Worker's Education (Semi Autonomous). The functions of some of the offices/organizations are described below*

Ministry of Labour and Employment (Secretariat): The Secretariat of the Ministry of Labour and Employment considers all questions concerning labour as far as the Government of India is concerned. It is the Central machinery for the formulation of labour policy, for enforcement of labour laws and for promotion of labour welfare. The policy-making activity covers subjects like closer co-operation between labour and management, better industrial relations and increasing production. It co-ordinates the activities of the State Governments in the sphere of labour. It also forms the Secretariat for the Tripartite Labour Conferences and the Industrial Committees, convened by the Government of India and is the channel for India's participation in the activities of the International Labour Organization (I.L.O.). But apart from these activities, the Ministry has recently accepted direct responsibility for evaluation and implementation of labour laws, awards, agreements, settlements, Code of Discipline in Industry, etc., and for evaluating the results achieved by these measures with suitable agencies set up by the State Governments.

Directorate-General of Resettlement and Employment: The Directorate was set up in 1945 with a view to resettling demobilized ex-servicemen in civilian occupations. Very soon it had to take upon itself the task of resettling displaced persons and has now developed into an agency for employment assistance and training. The organization has built up a

*Where the name of the office clearly defines its functions and no other functions are entrusted to it, the details of the organization and its functions are not described.

network of employment exchanges and training centres throughout the country. In 1956-57, the administratiton of these exchanges and training centres was transferred to the State Governments, though the laying down of standards and all policy matters relating to the functioning of the exchanges, collection of employment market information and training institutes continue to be the responsbility of the Directorate. The Directorate provides the Secretariat for the National Council for Training in Vocational Trades, which examines training policies and the implementation of training programmes. It also deals with the Central Committee on Employment which examines the working of employment policies.

Labour Bureau: This organization was set up in October 1946. It is responsible for (i) collection, compilation and publication of labour statistics; (ii) maintenance of consumer price index numbers for industrial and agricultural workers; (iii) conducting of *ad-hoc* enquiries and preparation of reports thereon; (iv) compilation and publication of reports on the working of Factories Act, 1946, Minimum Wages Act, 1948, and Indian Trade Union Act, 1926; and (v) publication of *Indian Labour Journal* (monthly), *Indian Labour Year Book* (annual), etc.

Office of the Chief Labour Commissioner: The Government of India appointed a Chief Labour Commissioner in 1945 to look after the welfare of employees and conciliation of industrial disputes in Central sphere undertakings. Its main functions are: (i) settlement of labour disputes; (ii) supervision of labour welfare; (iii) watching the implementation awards of Industrial Tribunals and Settlements arrived at in conciliation and submission of periodical reports regarding their implementation; (vi) verification of membership figures of Central Trade Union Organizations and such other related functions which may be entrusted to it by the Ministry.

Office of the Chief Inspector of Mines: The functions of this office are: (i) enforcement of the Mines Act, 1952, and the Rules and Regulations made thereunder; (ii) inspection of mines; (iii) investigation of accidents; (iv) inspection of electrical installation and machinery; (v) technical advice to mine owners; (vi) prosecution in cases of violation of statutory provision; (vii) collection of statistics under the Mines Act; and (viii) enforcement of the Maternity Benefit Act, 1951, and the rules framed under it in mines other than coal-mines. The Inspectorate of Mines published periodical reports about matters of interest to mining industry.

Office of the Chief Adviser, Factories: The organization was set up

in 1945 to function as a service capable of advising all concerned on matters relating to the health, welfare and safety of workers. It deals with all questions relating to the administration of the Factories Act and the rules framed under it; training of Factory Inspectors and Safety Officers; industrial health; surveys of toxic hazards; environmental problems in factories; studies relating to productivity and work and method studies; housing of industrial labour and administration of safety; health and welfare schemes and the Dock Workers (Regulation of Employment) Act, 1961. The organization also offers (i) Technical Service; and (ii) Information Service. It administers the Indian Dock Labourers Act, 1934, and the Indian Dock Labourers Regulations, 1948, through the Inspectors of Dock Safety, at Calcutta, Bombay and Madras.

The organization is responsible for the setting up of the (a) Central Labour Institute at Bombay comprising: (i) A Museum of Industrial Safety, Health and Welfare; (ii) an Industrial Hygiene Laboratory (iii) a training centre; (iv) a Library-cum-Information Centre; (v) a Productivity Centre; (vi) a Training-within-Industry Centre; (vii) an Industrial psychology Section; (viiii) an occupational Physiology Section; and (b) Three Regional Museums of Industrial Safety, Health and Welfare at Calcutta, Coimbatore and Kanpur

Office of The Director-General, Employees' State Insurance Corporation: This is a statutory corporation set up to administer the Employees' State Insurance Act. 1948. which provides for sickness, maternity, disablement and dependents benefits as well as medical benefit to workers employed in factories. Medical care is also provided for families of workers in certain places. The Corporation directly renders all the services except medical benefit where such services are organized by the State Governments.

Office of the Central Provident Fund Commissioner: This organization was set up in April 1953, for the administration of the Employees' Provident Fund Act, 1952, and the scheme framed under it. The Central Government constituted a Tripartite Board of Trustees to administer the Employees' Provident Fund. The fund vests in and is administered by the Board, a body corporate, consisting of a Government-nominated administered Chairman, nominees of the Central Government and State Governments and representatives of the All-India Employers' and Employees' Organizations. The Central Provident Fund Commissioner is subject to the general control of the Central Board of Trustees constituted under the scheme. He is assisted by 20 Regional Provident Fund Commissioners who have their offices for the most part in the capitals of various States.

Central Board for Workers' Education: The Board was set up as a semi-antonomous body in September 1958 and was registered under the Societies Registration Act of 1860 to administer the Workers' Education Scheme. The programme of the Central Board of Workers' Education operates in three tiers. First, education officers are selected in open competition and are given training. Next, selected workers are prepared as teachers. Finally, worker-teachers, on completion of their training, return to the establishments and conduct a programme for the rank and file of workers in their respective units, work-places or localities. By 1969, there were 30 Regional and Sub-Regional Centres for training; 18,251 worker-teachers had been trained; a total of 10 lakhs of workers had been trained.

During 1971, 2,845 worker-teachers and 168,943 workers were trained. Grants-in-aid amounting to Rs. 1.68 lakhs were also given to 132 unions/institutions, to organize their own workers' education programme. The Indian Institute of Workers' Education which was set up in 1970 in Bombay to serve as a demonstration and information centre, conducted refresher courses for education officers and organized training programmes in various docks and ports.

States Machinery: As labour is a concurrent subject, all the States have set up organizations for the administration and enforcement of the labour laws in force in their territories and for the collection, compilation and dissemination of statistical and other information relating to labour. All the States have appointed Labour Commissioners for purposes of administration of labour laws and welfare activities in their respective areas. In the discharge of their functions, the commissioners are generally assisted by Deputy Labour Commissioner and/or Assistant Labour Commissioners. In West Bengal, labour laws are administered by three Directorates under the labour department, *viz.*, the Labour Directorate, the Shops and Establishments Directorate, and the Factory Directorate. Most States have appointed Chief Inspectors of Factories and Chief Inspectors of Boilers to administer the Factories Act, 1948, and the Indian Boilers Act, 1923, respectively. Commissioners for workmen's compenation under the Workmen's Compensation Act, 1923, and Registrars of Trade Unions under the Indian Trade Union's Act, 1926, have been appointed in most States. The Labour Commissioner often supervises the functions of various officers enumerated above. Fo example, in Bihar, the Commissioner of Labour discharges the functions of the Commissioner for Workmen's Compensation, the Registrar of Trade Union, the Certifying Officer under the Industrial Employment (Standing Orders) Act, 1946, and the Regional Provident Fund Commissioner. The Chief Inspector of Factories and the Chief

Inspector of Boilers are also under his administrative control. In Maharashtra, the Commissioner of Labour is also the Certifying Officer under the Industrial Employment (Standing Orders) Act, 1946, and the Chief Conciliator under the Bombay Industrial Relations Act, 1946. In Rajasthan, the Labour Commissioner is also discharging the functions of Conciliation Officer for the State.

In certain States, special machinery has been set up for the collection of labour statistics, while in others the authorities listed above perform these duties as well. In Tamil Nadu, labour statistics are collected by the Chief Inspector of Factories, while in the Delhi territory, such statistics are collected by the Bureau of Economics and Statistics. In Assam labour statistics are collected by the Directorate of Economics and Statistics and also by the officers of the Labour Commissioner and the Chief Inspector of Factories. In Bihar, Madhya Pradesh and Maharashtra, labour statistics are compiled under the guidance of statistical authorities. Such authorities collect statistics regarding employment, hours of work, attendance and wages and earnings under the Industrial Statistics Act, 1942, (now replaced by the Collection of Statistics Act, 1953). In other States, according to information available in the Labour Bureau, labour statistics are collected through officers appointed for the administration of labour laws or by the Labour Department directly. For instance, statistics of employment, accidents. etc., under the Factories Act, 1948, and of wage bills and earnings under the Payment of Wages Act, 1936, are collected by the Chief Inspectors of Factories. The Registrars of Trade Unions collect statistics relating to trade unions, their membership, funds, etc. The Commissioners for Workmen's Compensation are in charge of the collection of statistics relating to accidents, compensation paid, etc., under the Workmen's Compensation Act, 1923.

Competent authorities have been appointed by the various State Governments under the Minimum Wages Act, 1948, to ascertain from time to time the Consumer Price Index Number applicable to persons covered by the scheduled employment.

While these are directly the functions for which administrative arrangements have to be made by the Ministry in charge of Labour at the Centre and in the States, there are certain judicial/semi-judicial offices which have to be constituted by the Ministry as circumstances require. In some ases, Standing Industrial Tribunals have been constituted by the Governments concerned while in others Wage Boards have been set up or enquiry Committees/Commissions appointed. Arrangements to serve such standing or *ad-hoc* bodies is also the responsibility of the concerned Ministry.

VII. India and the International Labour Organization

No account of labour in India is complete without a reference to India's connection with the International Labour Organization and the benefits that have flowed from it. As an original signatory to the Treaty of Versailles, India was a party to Article XIII of the Treaty which created the I.L.O. and thus became a member of the Organization since its foundation in 1919. The association has continued uninterrupted and India is one of the twelve permanent members of the Governing Body of the I.L.O. India is also a member of each of the Industrial Committees so far set up by the I.L.O. to examine the special problems relating to particular industries.

The International Labour Organization operates through the International Labour Conferences consisting of delegates from all the Member States, the Governing Body and the International Labour Office. The work of the Conference and Governing Body is supplemented by Regional Conferences, Industrial Committees and Analogous Bodies, Committees of Experts, Panels of Consultants and Special *ad-hoc* Conferences and Meetings. Most of these bodies are tripartite in character and consist of representatives of Governments, employers and workers. The regional confrences which were convened largely owing to India's efforts, aimed at tackling special problems relating to different regions, keeping in view the special needs and difficulties of the countries at different stages of economic and social development. Regional conferences are now convened for Africa, Asia, America, Europe and the Near and Middle East. The Asian Regional Conference has met five times so far. The first session called the 'Preparatory Session' was held in India in 1947. Another session of the Conference was held in India in 1957. The International Labour Office, whose headquarters are in Geneva, is assisted by 12 Branch Offices in addition to a number of Field Offices and National Correspondents. A Branch Office of the I.L.O., was established in India in 1928, and has functioned since. Besides acting as a major link in the world wide network of the I.L.O., the Branch Office has acted as a clearing house of information and maintains business contacts with Government authorities and employers' and workers' organizations. The office has brought out a number of publications covering various aspects of the labour problems in India.

The impact of the I.L.O. and its other agencies on the development of social and labour policies in India has been considerable. The holding of the International Labour Conference annually and the selection by the Government of India of the non-government delegates and advisers has acted as a catalytic agent in promoting organizations of workers and employers and their national federations. This process has been stimulated further by the establishment of other tripartite committees of the

I.L.O. and particularly Industrial Committees. In determing the place of 'Labour' in the constitutional structure, there is evidence to show that one of the reasons for deciding to have current jurisdicton on labour matters by Central and State Governments was the ratification of Conventions adopted by the I.L.O. Another instance of the impact of the I.L.O. is the setting up in India of the Tripartite Indian Labour Conference and the Industrial Committee with more or less similar functions as those of the I.L.O Organization and Industrial Committees.

International Labour Code: The main impact of the I.L.O. has been through its conventions and recommendations on social and labour matters. The Conventions and Recommendations adopted by the International Labour Conference since 1919, with other decisions of the Conference, the various Industrial Committees and similar committees and commissions together form what is now known as "The International Labour Code." The Conference has so far adopted 119 Conventions and 119 Recommendations and about 2,750 ratifications have been registered at the I.L.O. headquarters. India has so far ratified the 29 Conventions that are listed in Appendix IV.

It would not, however, be fair to judge the influence of the I.L.O. on India through the ratified conventions alone, because some of the conventions have no applicability to India. Similarly, there are others which have not been ratified for technical rather than substantial reasons. Also, where immediate ratification is not possible, measures are taken constantly to make ratification possible at a future date. A committee called the Committee on Conventions exists for examining on a continuing basis the International Labour Conventions and Recommendation with a view to accelerating the process of their implementation.

The benefit of association with the I.L.O. has reached India also through the various technical assistance programmes administered by the I.L.O. She has received technical assistance from the I.L.O. since 1951 in various fields like social security, training within industry, vocational training, employment service, productivity, etc.This has not, however, been one-way traffic so far as India is concerned. Indian experts in various fields like co-operation, cottage industries, labour statistics. personnel administration, employment services, manpower problems etc., have been selected by the I.L.O. for work in other countries like Afghanistan, Burma, Sri Lanka, the Philippines, Indonesia, etc., and many African countries. India has offered training facilities to people from other countries selected under the I.L.O. Fellowship Programme, as she has sent and is sending her own nationals abroad for training under the auspicies of the I.L.O.

Appendix I

Code of Discipline in Industry Towards Industrial Progress

I. To Maintain Discipline In Industry (both in public and private sectors) there has to be (i) a just recognition by employers and workers of the rights and responsibilities of either party, as defined by the laws and agreements (including bipartite and tripartite agreements arrived at all levels from time to time) and (ii) a proper and willing discharge by either party of its obligation consequent on such recognition.

The Central and State Governments, on their part, will arrange to examine and set right any shortcomings in the machinery they constitute for the administration of labour laws.

II. To Ensure Better Discipline In Industry:

A. Management and Union(s) Agree (i) that no unilateral action should be taken in connection with any industrial matter and that disputes should be settled at appropriate level; (ii) that the existing machinery for settlement of disputes should be utilized with the utmost expedition; (iii) that there should be no strike or lock out without notice; (iv) that affirming their faith in democratic principles, they bind themselves to settle all future differences, disputes and grievances by mutual negotiation, conciliation and voluntary arbitration; (v) that neither party will have recourse to (a) coercion, (b) intimidation. (c) victimization, or (d) go-slow; (vi) that they will avoid, (a) litigation, (b) sit-down and stay-in strikes, and (c) lock outs; (vii) that they will promote constructive co-operation between their representatives at all levels and as between workers themselves and abide by the spirit of agreements mutually entered into; (viii) that they will establish upon a mutually agreed basis, a grievance procedure which will ensure a speedy and full investigation leading to settlement; (ix) that they will abide by various stages in the grievance procedure and take no arbitrary action which would by-pass this procedure; and (x) that they will educate the management personnel and workers regarding their obligations to each other.

B. Management Agrees (i) not to increase work loads unless agreed upon or settled otherwise; (ii) not to support or encourage any unfair labour practice such as (a) interference with the right of employees to enrol or continue as union members, (b) discrimination, restraint or coercion against, any employee because of recognized activity of trade unions, and (c) victimization of any employee and abuse of authority in any form; (iii) to take prompt action for (a) settlement of grievances, and (b) implementation of settlements, awards, decisions and orders;

(iv) to display in conspicuous places in the undertaking the provisions of this Code in local language (s); (v) to distinguish between actions justifying immediate discharge and those where discharge must be preceded by a warning, reprimand, suspension or some other form of disciplinary action and to arrange that all such disciplinary action should be subject to an appeal through normal grievance procedure; (vi) to take appropriate disciplinary action against its officers and members in cases where enquiries reveal that they were responsible for precipitate action by workers leading to indiscipline; and (vii) to recognize the union in accordance with the criteria (Annexure I) evolved at the 16th session of the Indian Labour Conference held in May 1958.

C. Union(s) Agree (i) not to engage in any form of physical duress; (ii) not to permit demonstrations which are not peaceful and not to permit rowdyism in demonstration; (iii) that their members will not engage or cause other employees to engage in any union activity during working hours, unless as provided for by law, agreement or practice; (iv) to discourage unfair labour practices such as (a) negligence of duty, (b) careless operation, (c) damage to property, (d) interference with or disturbance to normal work, and (c) insubordination; (v) to take prompt action to implement awards, agreements, settlements and decisions; (vi) to display in conspicuous places in the union offices, the provisions of this Code in the local language(s); and (vii) to express disapproval and to take appropriate action against office-bearers and members for indulging in action against the spirit of this Code.

ANNEXURE I

Criteria for Recognition of Unions

1. Where there is more than one union, the unions claiming recognition should have been functioning for at least one year after registration. Where there is only one union, this condition would not apply.
2. The membership of the union should cover at least 15% of the workers in the establishment concerned. Membership would be counted only for those who had paid their subscriptions for at least three months during the period of six months immediately proceeding the reckoning.
3. A union may claim to be recognized as a representative union for an industry in a local area if it has a membership of at least 25% of the workers of that industry in that area.
4. When a union has been recognized, there should be no change in its position for a period of two years.
5. Where there are several unions in an industry or establishment the one with the largest membership should be recognized.

6. A representative union for an industry in an area should have the right to represent the workers in all the establishments in the industry, but if a union of workers in a particular establishment has a membership of 50% or more of the workers of that establishment it should have the right to deal with matters of purely local interest, such as, the handling of grievances pertaining to its own members. All other workers who are not members of that union might either operate through the representative union for the industry or seek redress directly.

7. In the case of trade union federations which are not affiliated to any of the four central organizations of labour, the question of recognition would have to be dealt with separately.

8. Only unions which observed the Code of Discipline would be entitled to recognition.

Appendix II

Inter-Union Code of Conduct*

We, the representatives of four Central Labour Organizations, namely, I.N.T.U.C., A.I.T.U.C., H.M.S. and U.T.U.C. agree to observe the following basic principles for maintaining harmonious inter-union relations:

(1) Every employee in an industry or unit shall have the freedom and right to join a union of his choice. No coercion shall be exercised in this matter.

(2) There shall be no dual membership of unions. (In the case of Representative Unions, this principle needs further examination).

(3) There shall be unreserved acceptance of, and respect for, democratic functioning of trade unions.

(4) There shall be regular and democratic elections of executive bodies and office-bearers of trade unions.

(5) Ignorance and/or backwardness of workers shall not be exploited by any organization. No organization shall make excessive or extravagant demands.

(6) Casteism, communication and provincialism shall be eschewed by all unions.

(7) There shall be no violence, coercion, intimidation, or personal vilification in inter-union dealings.

(8) All Central Labour Organizations shall combat the formation or continuance of Company Unions.

* Adopted on May 21, 1958.

Appendix III

Industrial Truce Resolution*

Realizing that a grave emergency has overtaken the nation on account of the Chinese aggression and the need has arisen for taking urgent steps in every direction, to prepare adequately for the defence of the country, and repelling the invasion of its territory, the Joint Meeting of all Central Employers' and Workers' Organizations, held today, November, 3, 1962 resolves that no effort shall be spared to achieve maximum production, and managements and workmen will strive in collaboration in all possible ways, to promote the defence effort of the country and re-affirms their pledge of unstinted loyalty and devotion to the country. Towards these ends, the following steps shall be taken:—

I. Climate

It is important that a suitable climate should be created and preserved for ensuring sustained effort and resolute action in pursuance of the aforesaid aim. Both sides should exercise restraint and forbearence, so that nothing is allowed to come in the way of their single minded and concerted endeavour in support of the defence of the country. Positive steps should be taken to promote constructive co-operation between management and workers in all possible ways.

II. Industrial Peace

(i) Under no circumstances shall there be any interruption in/or slowing down of production of goods and services.

(ii) In respect of their economic interests both workers and employers will exercise voluntary restraint and accept the utmost sacrifice, in an equitable manner, in the interest of the nation and its defence efforts.

(iii) There should be maximum recourse to voluntary arbitration and adequate arrangements should be made for the purpose. If necessity for a reference to adjudication arises, the processes connected with it should be completed with the utmost promptness.

(iv) The industries mentioned in the First Schedule to the Industrial Disputes Act, 1947, and such other industries as may be considered necessary, *e.g.*, petroleum and its products, chemicals, etc., may be declared as public utility services under sub-clause (vi) of clause (s) of Section 2 of the Act.

(v) All complaints pertaining to dismissal, discharge, victimization

* Adopted at the Joint Meeting of Central Organizations of Employers and Workers held in New Delhi on November 3, 1962.

and retrenchment of individual workmen, not settled mutually should be settled through arbitration. For this purpose, the officers of the conciliation machinery may, if the parties agree, serve as arbitrators. Dismissals and discharges of workmen should, however, be avoided as far as possible.

(vi) The labour administration at the Centre and States should be stream-lined so that grievances and disputes are settled promptly and cordial industrial relations are maintained.

III. Production

(i) All impediments in the way of better and fuller utilization of of men, machinery and materials should be removed. There should be no idle plant capacity or waste. Managements should exercise the maximum economy in their operations.

(ii) To maximize production, establishments should work, wherever possible, extra shifts, extra hours or on Sundays and holidays by mutual agreement. Full co-operation should be extended by all in this respect. All advantages accruing to industry out of the extra effort of the workers should go to the consumer and/or be made available for defence efforts.

(iii) Absenteeism and turnover should be discouraged and reduced to the minimum. Negligence of duty, careless operation, damage to property and interference with or disturbance to normal work should be denounced by the unions. Similarly, any lapse on the part of the management that contravenes the spirit of the defence effort should be condemned and put right forthwith.

(iv) Technical and skilled personnel in short supply should be switched over to emergent work having a bearing on defence. Simultaneously, steps should be taken to increase the supply of technical and skilled personnel through apprenticeship and other training programmes.

(v) In the production drive the well-being and health of the working class should not be ignored.

IV. Price Stability

(i) Every effort should be made to ensure that prices of industrial goods and essential commodities are not allowed to increase.

(ii) To ensure supply of essential commodities at fair prices to the working class steps should be taken, whenever necessary, to organize Consumers' Co-operatives in each unit and in industrial areas.

V. Savings

(i) The imperative necessity of increasing savings in the larger interest

of the country should be brought home to workers and managements and arrangements to facilitate greater savings should be provided forthwith.

(ii) Workers may be persuaded to contribute to the National Defence Fund and/or invest in Defence Bonds every month an amount equivalent to at least one day's earnings. Managements also agree to contribute liberally towards National Defence Fund and/or invest in Defence Bonds; the basis of their contribution will be settled in consultation with Government.

Appendix IV

The following are the 29 Conventions of the International Labour Organization that India has so far ratified:

1. No. 1, Hours of Work (Industry) Convention, 1919.
2. No. 2, Unemployment Convention, 1919.
3. No. 4, Night Work (Women) Conventilon, 1919.
4. No. 5 Minimum Age (Industry) Convention, 1919.
5. No. 6 Night Work of Young Persons (Industry) Convention, 1919.
6. No. 11 Right of Association (Agriculture) Convention, 1921.
7. No. 14 Weekly Rest (Industry) Convention, 1921.
8. No. 15 Minimum Age (Trimmers and Stockers) Convention, 1921.
9. No. 16 Medical Examination of Young Persons (Sea) Convention, 1921.
10. No. 18 Workmen's Compensation (Occupational Diseases) Convention, 1925.
11. No. 19 Equality of Treatment (Accident Compensation) Convention, 1925.
12. No. 21 Inspection of Emigrants Convention, 1926.
13. No. 22 Seamen's Articles of Agreement Convention, 1926.
14. No. 26 Minimum Wage-Fixing Machinery Convention, 1928.
15. No. 27 Marking of Weight (Packages transported by Vessels) Conventon, 1929.
16. No. 29 Forced Labour Convention, 1930.
17. No. 32 Protecton Against Accident (Dockers) Convention, (Revised), 1932.
18. No. 41 Night Work (Women) Convention, (Revised), 1934.
19. No. 42 Workmen's Compensation (Occupational Diseases) Convention (Revised), 1934.
20. No. 45 Underground Work (Women) Conventilon, 1935.
21. No. 80 Final Articles Revision Convention, 1946.
22. No. 81 Labour Inspection Convention, 1948.
23. No. 88 Employment Service Convention, 1948.
24. No. 89 Night Work (Women) Convention, (Revised), 1946.
25. No. 90 Night Work of Young Persons (Industry) Convention,

(Revised) 1948.

26. No. 100 Equal Remuneration Convention, 1951.
27. No. 107 Indigenous and Tribal Regulations Convention, 1957.
28. No. 111 Discrimination (Employment and Occupation) Convention, 1958.
29. No. 116 Final Articles Revision Convention, 1961.

CHAPTER XVII

INCOME, CAPITAL FORMATON AND SAVINGS

An analysis of the trends in national and per capita income, capital formation and savings can throw significant light on economic growth and its major determinants. The rate of growth of national income is commonly employed as a measure of the pace at which an economy has been advancing. This concept is a simple and analytically serviceable, though not, an adequate measure of economic progress. Its inadequacy is, however, obvious. First, there is often a large margin of error emanating from unsatisfactory bases and arbitrary assumptions involved in certain sectoral estimates; and secondly, it fails to portray qualitative changes. Economic growth is a generic term and comprehends a wide range of improvements pervading the entire life and living in a community. Improvements in the physical and mental ability to work, development of initiative and enterprise in a community, modernization of institutional arrangements, advancement in the level of techniques of production and structural realignments in the productive apparatus, and more equitable distribution of incomes are some of the more important facets of economic progress, all contributing to the end-result of making the community more prosperous.

Some of these are qualitative improvements and cannot be reduced to a common measure. The normal technique of national income estimation fails to comprehend these and express them in quantitative terms. While all this is true, the use of national income estimates has the merits of identifying the components so vital to the analysis of sectoral growth of an economy. It also enables concentrated attention on the readily measurable and causally inter-related aggregates like income, consumption, investment and savings. Further, after allowing for changes in population, the rate of growth of per capita income provides an index of the rise in productivity and standard of living and, therefore, of economic welfare in a community. It is for these reasons that in the analysis presented here, the rates of growth of national and per capita income have been used as indicators of economic progress and related to the analysis of investment and savings trends, their major determinants.

I. National and Per Capita Real Income

Each sector of the economy *viz*., agriculture, industry, mining, trade, transport, banking and other services, whose development has been discussed in earlier chapters, employs human and material resources and contributes to the aggregate flow of goods and services during a given

time-period which may be normally specified as a calendar year. This aggregate flow of goods and services represents the aggregate income earned by factors of production employed during the year, and is termed as national income in technical parlance. It is a sum of domestic output counted without duplication *i.e.* value added by factors domestically employed and originating within the economy and net income earned from financial investments abroad. Changes in nominal national income are measured at current prices and in real national income at constant prices. A distinction is usually made between *gross* and *net* national income; the former does not, while the latter does, allow for capital consumption or depreciation of the stock of capital during the accounting period. What is relevant for the analysis of economic growth is the *net* national income whose rate of growth is indicative of the pace at which the economy has been growing.

The rate of growth of *net* national income when compared with the rate of growth of population indicates whether the economy is declining, stagnant or developing. If the rate of growth of national income is lower than the rate of growth of population, per capita income declines, the economic condition of the people (on an average) deteriorates and the economy exhibits a declining trend. When net national income grows at a rate equal to the rate of growth of population, per capita income remains constant and the economy continues to stagnate. It is only when *net* national income grows at a rate faster than the rate of growth of population that per capita income depicts a rising trend. The community is able to improve its living standard and add to its stock of capital, and the economy moves on the path of a rising level of activity and productivity. A developing economy is characterized by such a trend.

An analysis of trends on the lines indicated above presupposes the availability of fairly reliable and comparable time-series of data on national *real* income, population and per capita *real* income. In India, the first attempt to estimate national income and per capita income was made for the year 1867-68 by Dadabhai Naoroji. This was followed by several intermittent efforts by individuals — officials as well as non-officials. The Table I sets forth the more important estimates made for particular years before World War II.

All these estimates are at current prices and differ widely in territorial coverage, conceptual basis, method of estimation and basic data used. They do not provide a series of comparable estimates adequately reliable to study the growth of Indian economy over the period. In view of this deficiency of national income statistics, some research workers have, of late, attempted to study the trends during the period by following two alternative methods: one is based on available time-series data on physical units of output and the other on a time-series of national and per capita

TABLE I

Estimator	Year	Estimates		
		National income (Rs. crores)	Population (crores)	Per capita income (Rs.)
Dadabhai Naoroji (1)	1867-68	340	17.0	20
Baring (Earl Cromer) and Barbour (2)	1882	525	19.5	27
Lord Curzon (3)	1897-98	675	22.5	30
William Digby (4)	1898-99	428	24.5	17.5
Atkinson (5) (i)	1875	574	18.8	30.5
(ii)	1895	877	22.2	39.5
Findlay Shirras (6) (i)	1911	1,942 (1,204)	24.3	80 (50)
(ii)	1920-21	2,598 (1,771)	24.7	(107 (72)
(iii)	1921-22	2,866 (2,079)	24.7	116 (85)
Shah and Khambatta (7) (i)	1900-14	1,106*	30.5*	36*
(ii)	1914-22	1,862*	31.8*	58.5*
(iii)	1900-22	1,380*	31.0*	44.5*
(iv)	1921-22	2,364	31.9	74
V.K.R.V. Rao (8)	1931-32	1,689 ± 6%	27.2	62 ± 6%

*Average for the period

(1) Dadabhai Naoroji: *Poverty of India* (London 1878) also *Poverty and Un-British Rule in India* (London 1901). (2) Quoted by William Digby in *Prosperous British India* (London 1901) pp. 364 etc. seq and 442 et seq. (3) *East India. Finance Statement* 1901-2 pp. 212-14 (official estimate of Govt. of India); (4) William Digby: *Prosperous Britisn India* (London 1901). (5) Fred. J. Atkinson: "A Statistical Review of the Income and Wealth of British India", *Journal of the Royal Statistical Society*, LXV (1902) pp. 209 ff. (6) G. Findlay Shirras: *The Science of Public Finance* (London, 1924) pp. 138-49. Figures within brackets are based on the old mthod followed in Govt. of India's official estimates (vide 3 above). (7) K. T. Shah and Khambatta: *Wealth and Taxable Capacity of India*, Bombay 1924, p. 200. (8) V.K.R.V. Rao: *National Income of British India*, 1931-32 (London, 1940).

(2) For a critical review of these estimates see: V.K.R.V. Rao: *An Essay on India's National Income*, 1925-29, London 1939; also the section on *National Income Estimates* in Daniel Thorner's paper on "Long-term tends in output in India" published in "*Economic Growth: Brazil, India and Japan*" edited by Simon Kuznets and others, Duke University Press, 1955.

incomes specially constructed by moving backward and forward the later estimates, like that of Dr. V.K.R.V. Rao for 1931-32 or the official estimate for 1948-49, with the help of indices of prices, agricultural production, business activity, etc. Proceeding on the former basis, Daniel Thorner draws the following inference from his study of the trends in Indian economy during the pre-independene period:

> "In retrospect, the net effect of British rule was to change drastically the social fabric of Indian agriculture, but to leave virtually unaffected the basic process of production and the level of technique. The upper strata of the new agrarian society benefited handsomely. The position of the cultivators deteriorated. Capital needed for the development of agriculture was siphoned off and the level of total output tended towards stagnation.

"By contrast with agriculture, there seems little doubt that total non-agricultural activity has been rising in India over the last sixty years. The contribution to the total national product from medium industry, domestic commerce, and the services has been on the increase. Whether, in view of the static condition of agriculture and the growing population, this expansion of other sectors has been sufficiently large to maintain the level of per capita total product, is a difficult question to answer .. Some hold that in the twentieth century per capita income has been rising; others that it has not been rising. There is a third logical possibility that per capita income has been declining. Until knowledge of India's economy and its evolution comes to rest on a more solid foundation, it would seem premature to rule out this third possibility"*.

The second method has been followed by the following research workers who have constructed as many as 14 series-estimates. These are:

TABLE II

	Period covered	*Number of series constructed*
H. C. Arora and (1) K. V. R. Iyengar	1900 to 1955	3 (one unpublished)
R. C. Desai (2)	1931-32 to 1940-41	1 (consumer expenditure series)
Eastern Economist (3)	1939-40 to 1949-50	1
G. S. Gouri (4)	1931 to 1949	1
K. M. Mukherji (5)	1900 to 1952	2 (unpublished)
M. Mukherjee (6)	1900 to 1948	1 (unpublished)
N. A. Narasimhan (7)	1919 to 1952	1
S. J. Patel (8)	1896 to 1955	1
V. K. Sastry (9)	1920-21 to 1946-47	1
G. F. Shirras (10)	1921-22 to 1932-33	2

(1) "Long Term Growth of National Income in India: 1900-1956", published in *Papers on National Income and Allied Topics.* ed. by Dr. Rao, Sen and others, Bombay, 1960. pp, 209-11.

(2) *Standard of Living in India and Pakistan*, also "Consumer Expenditure in India, 1931-32 to 1940-41", *Journal of the Royal Statistics Society*, CXI, Part IV, 1948.

(3) *Annual Number, Dec.* 29, 1950: Explanatory and Statistical Appendix. *A National Income*, pp. 1057 ff.

(4) G. S. Gouri; "National Income Estimates in India, 1931-39, *Indian Economic Journal, July*. 1957.

(5) *D. Phil Thesis* accepted by Calcutta University.

(6) *Unpublished Manuscript.*

(7) *A Short Term Planning Model for India*, 1956.

(8) "Long term change in output and income in India", *Indian Economic Journal*, January, 1958.

(9) "India's External Trade: Some Problems", *Indian Economic Journal*, July, 1955.

(10) *Poverty and Kindred Economic Prolems in India* 1935.

*Daniel Thorner. *op. cit.* pp. 127-8.

These series-estimates have been reviewed and interpreted by M. Mukherji of the Indian Statistical Institute, Calcutta in a paper* submitted to the Second Indian Conference on Research in National Income held at Delhi in 1960. His findings are quoted below:

> "Not much validity attaches to anyone of the individual series considered here .. It is safer, however, to examine all the available series before drawing any conclusion and in this context, Arora and Iyengar's all three estimates, Suren Patel's series and K. Mukherjee's two series deserve consideration.
>
> "All the six series just mentioned depict a gradual growth of per capita real national ncome over the period 1900 to about 1925. For the remaining period Patel's figures show a steady decline. In the remaining five series, there is some kind of a stability of per capita *real* income over the period 1925-1940 in rough way, a decline during 1940-50 roughly, and a rise to the peak reached ever earlier during the following years under consideration. Thus Patel's hypothesis though reasonable is unlikely to be true, if one has to accept all the available evidence. On the other hand, it seems likely that the general picture presented by the five other series gives a more or less realistic picture of what happened during the period. Thus one may conclude that our per capita income grew over the first half of the half century under review, then remained more or less steady upto the Second World War, declined to some extent during the next decade and overtook and surpassed the highest levels reached in the past during the last few years. Thus, on the whole, we get a slight rise over the half century with periods of growth,** stagnation and decline."

The break in the fifties from the declining trend of the forties is also brought out by the official estimates* of national and per capita *real* incomes prepared on a consistent basis for each of the years in the post-independence period. The Table below shows that during 1948-49 to 1950-51 (pre-plan period) national *real* income grew at the compound rate of 1.2 per cent per year while population increased at the compound rate of 1.6 per cent per year. Consequently, per capita *real* income registered a decline. In contrast, during the first fourteen years of economic planning (1951-65) national *real* income rose at the compound rate of 3.9 per cent per annum; the corresponding rate of growth for

*That the first quarter of the current century was a period of mild growth is also inferred by Shah and Khambatta (*op. cit*. pp. 203-4) on a comparison of the average level of per capita *real* income during the two periods 1900-14 and 1914-22. They write: "The picture that we have depicted, though a dark one, is not too gloomy, for it reveals a slight but distinct advance — We have not been going backwards nor is it that we are remaining stationary. On the contrary, the present enquiry shows a real increase of Rs. 2-2-0 per head in course of about fifteen years.

	Pre-War (1900=14)	Post-War (1914=133)
**Gross Income per head at pre-war (1900-14) price level	Rs. 36	Rs. 38-2-0

population being 2.1 per cent per annum, per capita *real* income increased at a compound rate of 1.8 per cent per year. The next two years were characterized by severe setbacks to the growth of agricultural and industrial production and as a result national income showed a substantial decline in 1965-66, followed by a marginal improvement in 1966-67. The ensuing year, however, witnessed a marked recovery. According to the latest available estimates — these relate to 1968-69 — the total *real* national income shows a rise of 91 per cent and *real* per capita income of 31 per cent over the 1950-51 level. The annual rate of increase (compound) during these eighteen years works out to 3.6 per cent for aggregate national income and 1.5 per cent for per capita income.

TABLE III

	1948-49	1950-51	1964-65	1968-69	*Compound rate of growth per cent per annum* *Pre-Plan period* 1948-51	*Plan period* 1951-65	1951-69
National Income* (Rs. crores)	86,50	88,50	149,80	169,10	1.2	3.9	3.6
Population** (Million)	346.6	357.6	474.6	521.4	1.6	2.1	2.1
Per capital Income (Rs.)	249.6	247.5	315.6	324.3	—0.4	1.8	1.5

*At 1948-49 prices.
**Estimates implicit in the derivation of per capita income.

With the commencement of economic planning in the fifties, per capita *real* income has undoubtedly shown an upward trend, but the rate of its annual growth so far has been slow. The Fourth Plan document, therefore, postulates a vigorous effort to step up the rate of per capita income in the coming years. The 1968-69 level of national income is expected to get doubled by 1980-81. And since population is expected

*The official estimates of national income at 1948-49 prices prepared annually for the years since 1948-49 follow the method and factual bases recommended by the National Income Committee appointed by the Government of India in 1949. The committee comprised Prof. Mahalonobis as Chairman, Prof. D. R. Gadgil and Prof. V. K. R. V. Rao as members. Its First Report was published in 1951 and the Final Report in 1954. The latter reviewed the estimate made for 1948-49 in the First Report and presented a revised estimate for 1948-49 together with further estimates for 1949-50, and 1950-51. The methodology followed was discussed in detail, sources of data used indicated and steps to be taken for data improvement recommended. The Report recognized the large margin of error emerging from the paucity of data for certain sectoral estimates, which as estimated in the Report ranged between ± 10% for factory establishments, mining, Railways, organized banking and Government sectors to as much as ± 33.3% for small enterprises, house prosperty, other commerce and transport, etc. For the overall estimates, the margin of error is worked out at ± 10%. The quality and coverage of basic data have since improved and in August 1967 the Central Statistical Organization (C.S.O.), released its brochure on revised series of national product. The improvements incorporated in the revised series relate to the industrial classification of the national product, presentation of estimates separately for gross and net product, incorporation of 1961 Census data and the results of the various surveys undertaken by the C.S.O. and other agencies. The estimates at constant (*i.e.* 1960-61) prices have also been improved by building up more appropriate indicators and deflators for measuring gross/net product in various industries.

to rise by about one-third during this period, *real* per capital income in 1980-81 would be 53 per cent higher than its level in 1968-69.

The economic growth registered in the last eighteen years is also reflected in the changes in the industrial origin of the national output as well as in the shift in the occupational pattern. Some light on this crucial question is thrown by the analysis of the sectoral rates of growth undertaken in the following table:

TABLE IV

	1950-51		1967-68		*Compound rate growth (percent) per annum Plan Period 1951-68**
	Amount (Rupees crores)	*Per cent*	*Amount (Rupees crores)*	*Per cent*	
A. **Agriculture, animal husbandry and ancillary activities**	4,340	49.0	6,880	41.6	2.8
B. **Non-agricultural sectors**	4,530	51.2	9,850	59.7	4.7
1. Mining and manufacture and small enterprises	1,480	16.7	2,750	16.7	3.7
2. Commerce, transport and communications	1,660	18.8	3,170	19.2	3.9
3. Other services	1,390	15.7	3.930	23.8	6.3
C. **Net domestic product at factor cost**	8,870	100.2	16,730	101.3	3.8
D. **Net earned income from abroad**	—20	—0.2	—210	—1.3	14.8
E. **Net national income (output) at factor cost**	8,850	100.0	16,520	100.0	3.7

*Conventional Estimates of Net National Product (at 1948-49 prices).

It will be seen from the Table above that whereas income originating in the agricultural sector increased over the period of 17 years at a compound rate of 2.8 per cent per year, income originating in the non-agricultural sectors (mining, manufactures, small enterprises, commercial transport, communication and other services) increased at a rate of 4.7 per cent. During this period, the share of the agricultural sector in the total domestic product declined from 49 per cent to 42 per cent and that of non-agricultural sector rose from 51 per cent to 60 per cent. It may, however, be mentioned that in 1967-68, the industrial sector had not as yet fully recovered from the impact of the recession. Nonetheless, it is relevant to note that the net output of mining and manufacturing establishment is estimated to have risen at a compound rate of 5.6 per cent per annum betwen 1960-61 and 1968-69, and in terms of the Fourth Plan, this is expected to expand at an overall rate of around 9 per cent during the Fourth Plan period. This order of expansion has been considered conistent with the projected annual growth rate of 5.5 per cent in

national income and 5 per cent in the net output of the agricultural sector. The sectoral composition of the net domestic product as projected in the Fourth Plan is as follows:

TABLE V

Sectoral Composition of Net Domestic Product: 1968-69 to 1980-81

(Rs. 100 crores at 1968-69 prices)

No.	*Sector*	1968-69	1973-74	1978-79	1980-81	*Index of growth* 1980-81 *over* 1968-69
1.	Agriculture and allied activities.	148.6	189.5	234	254	171
5.	Mining, manufacturing and construction	55	80.6	126	150	273
3.	Others	87.1	113	157	178	204
4.	Net domestic product	290.7	383.1	517	582	200

Another indicator of the structural change in the economy is the shift in the pattern of employment. The 1961 Census divides the total population into workers and non-workers. Workers include those deriving their earnings from productive occupations followed either as a principal or a subsidiary means of livelihood, irrespective of the level of earnings, provided they are employed in seasonal work for more than one hour a day throughout the greater part of the working season or in regular work during any of the fifteen days preceding the day of enumeration. A person who was working but was absent from his work during the fifteen days preceding the day of enumeration due to illness or other causes was a worker. A person who was offered work but had not actually joined was treated as a non-worker. Supervisory staff, apprentices (paid or unpaid) and social or political workers are treated as workers while beggers, pensioners, ex-royalty, rent, or dividend receivers not participating in any productive profession, business or commerce, are excluded. The definition is, therefore, more comprehensive and include self-employed as well as earning dependents having a principal or subsidiary means of livelihood. The workers employed have been classified by occupational categories both for 1961 and for earlier censuses to ensure comparability on the basis of the new definition. Some idea of the sectoral growth in number of workers employed and the consequential shift in employment pattern is given in Table VI.

The Table indicates that the annual rate of growth in the number of workers employed has been faster in industry, construction and transport. These are, broadly speaking, the very sectors whose net output also showed a relatively faster rate of annual growth over about the same period. For subsequent years, the available information relates to the

TABLE VI

		1951 Number (million)	1951 Per cent	1961 Number (million)	1961 Per cent	*Compound rate of growth per cent per annum*
1.	Agriculture*	97.3	69.8	131.0	69.5	3.0
2.	Mining, manufacturing ** and other industries	16.7	128.1	25.2	13.2	4.2
3.	Construction	1.5	1.0	2.1	1.2	3.4
4.	Trade and commerce	7.3	5.1	7.6	4.0	0.4
5.	Transport and communications***	2.1	1.5	3.0	1.6	3.4
6.	Other services	14.6	10.5	19.5	10.55	2.9
	Total	139.5	100.0	188.4	100.0	3.0

*Includes cultivators and agricultural labour.

**Includes forestry, fishery and plantations, etc.

***Includes storage also.

employment in the organized sector (*i.e.* public sector and establishments in the non-agriculture private sector employing more than 10 persons) and shows an annual rate of increase of 4.1 per cent during the period March 1961 to March 1969. The following Table sets forth the relevant details:

TABLE VII

Employment in the Organized Sector*

(Figures in thousands)

		March 1961		*March* 1969		*Compound rate of growth per cent per annum*
		Number	*Percentage*	*Number*	*Percentage*	
1.	Agriculture, livestock etc.	850	7.04	1,074	4.46	3.0
2.	Mining and quarrying	680	5.63	596	3.58	—1.6
3.	Manufacturing	3,390	28.06	4,530	27.24	3.7
4.	Construction	840	6.95	942	5.66	1.4
5.	Electricity	260	2.15	413	2.48	5.9
6.	Trade and commerce	250	2.07	553	3.33	10.4
7.	Transport, storage and communications	1,800	14.90	2,267	13.63	2.9
8.	Services	4,010	33.20	6,256	37.62	5.7
	Total	12,080	100.00	16,631	100.00	4.1

**Employment Reviews*, 1960-61 and 1968-69 — Directorate General of Employment and Training.

The analysis of the trends in output and employment attempted in the preceding paragraph does not, however, tell the whole story of structural transformation initiated in the economy since the commencement of economic planning. It does not bring out the changes within each of the major sectors, some of which are highly relevant for a faster growth

of the economy in future years. It also throws no light on the factors promoting or retarding growth that have been operative during the period in the various sectors. To make up this deficiency, the growth of the two major sectors — agriculture and industry — has been analysed in greater detail on the basis of such supplementary data as are available.

The following Table sets forth the analysis foi agriculture proper covering production of both foodgrains and non-food crops:

TABLE No. VIII

	Index Numbers 1949-50 = 100				*Compound rate of growth per cent per annum*			
	1950-51	1955-56	1961-62	1968-69	1951-56	1956-52	1962-69	1951-69
All Crops								
Area	99.9	115.0	123.8	125.7	2.8	1.3	0.2	1.3
Production	95.6	116.8	144.8	158.7	4.1	3.6	1.4	2.9
Productivity	95.7	101.6	117.0	126.3	1.2	2.3	1.2	1.6

It will be seen that agricultural production (all crops) increased at a compound rate of 4.1 per cent per annum during 1951-56, of 3.6 per cent during 1956-62 and 1.4 per cent during 1962-69. Taking the entire period of eighteen years, agricultural production is estimated to have grown at an annual compound rate of 2.9 per cent. Both increase in area under cultivation and improvement in productivity of agriculture contributed to the increase in production. While the increase in the area under cultivation was the dominating factor during the First Plan period, when bulk of the extension of farming to new lands was accomplished leaving scope for only marginal addition during the remaining years, the increased production during the period 1956-69 resulted from improved productivity and more intensive farming. With limited scope for extensive farming in future years, it follows that improvement in the rate of growth of agricultural production can be brought about principally by resort to more intensive farming The strategy of production as indicated in the Fourth Plan, therefore, places very little reliance on bringing additional land under cultivation; the main emphasis is on intensive agriculture, consisting of extension of high yielding variety programmes and multiple cropping, continued expansion of irrigation facilities, improvement in the utilization of existing potential and intensive efforts in raising the productivity of commercial crops and enlargement in the facilities for inputs, credit and marketing.

Industrial production increased during the period 1951-69 at a compound rate of 6.4 per cent per annum. The general index of industrial production (1960=100) rose from 56.1 in 1951 to 172.4 in 1969. A special feature of industrial development, particularly since the beginning

of the Second Plan has been the emphasis on the development of steel, aluminium, engineering, chemical and petroleum products and on the growth of power and transport. A fairly good idea of the industrial diversification which has taken place can be had from the following data on the growth of certain selected industries.

TABLE IX

	1950-51	1960-61	1964-65	1965-66	1968-69
Finished steel (000 tonnes)	1,040	2,300	4,430	4,600	4,800
Aluminium ingots (000 tonnes)	4.0	18.3	54.1	65.0	125.5
Diesel engines — stationary (000)	5.5	43.2	74.1	85.0	119.5
Automobiles (000)	16.5	55.0	70.8	68.5	79.0
Machine tools (value in Rs. crores)	0.3	7.0	20.0	23.0	25.3
Sugar machinery (value in Rs. crores)	Nil	4.2	9.1	8.0	11.4
Bicycles organized sector (000)	99	1,071	1,442	1,700	1,954
Sulphuric acid (000 tonnes)	101	361	695	664	1,017
Cement (million tonnes)	2.7	8.0	9.8	10.8	12.2
Nitrogenous fertilizers (000 tonnes of N)	9	99	234	233	486
Caustic soda (000 tonnes)	12	99	192	218	314
Coal (million tonnes)	32.8	55.7	64.4	70.0	75.0
Iron ore (million tonnes)	3.0	11.0	15.1	23.0	21.2
Petroleum products (million tonnes)	0.2	5.8	8.4	9.9	15.4
Electricity generated (million kwh)	6,575*	20,123	29,280	36,400	45,000

*Relates to calendar year.

The progress of industrialization during this period has led to a gradual transformation of the industrial structure. The weight of the consumer goods industries as determined by their percentage contribution to net value added by all industries has been steadily reduced while that of producer goods industries correspondingly increased. This trend is brought out by the Table below:—

TABLE X

Contribution to Net Value Added

(Percentages)

Industries	1950-51	1960-61	1964-65	1965-66
Consumer goods	67.9	45.7	36.5	34.0
Intermediate goods	23.3	37.3	41.4	43.3
Machinery	8.0	16.3	21.4	22.0
Others	0.8	0.7	0.7	0.7
Total	100.0	100.0	100.0	100.0

II. Net Capital Formation

The foregoing analysis points to the urgency of a progressive step-up in the allocation of real resources for furthering production. If area under improved seeds is to be progressively extended to raise the rate of growth of agricultural output, it is imperative to set apart an increasing proportion of the output of farms using improved seeds for seed purposes. There will also be the need for building up at a corresponding pace seed storage and distribution facility. The storage facility has also to be built for stockpiling of foodgrains. Similarly, the use of fertilizers per hectare can be stepped up only if the availability of fertilizers improves *pari passu*. This entails larger allocation of real resources to expand the capacity of domestic production, transport and storage of the various types of fertilizers. The building up of irrigation potential and its fuller utilization also calls for an extended scale of investment in construction of irrigation works, canals, and distribution channels. Likewise, speedy and diversified industrial development involves an accelerated rate of investment to create additional capacity for production and transport. In short, a progressive stepping up of the rate of investment in the economy is a precondition for its more rapid growth. This is possible only if the real resources required for an accelerated rise in the rate of investment are forthcoming on an adequate scale, whether from domestic sources or from the rest of the world. What light do recent trends in net investment and savings throw on this problem?

Till recently, the available data on net capital formation were rather scrappy. The non-availability of data on saving and investments have long stood in the way of preparation of a comprehensive system of national accounts. The earliest attempt was made in the First Five Year Plan, which estimated net investment in 1948-49 prices to be Rs. 450 crores in 1950-51. This formed about 5 per cent of the national income for the year estimated at Rs. 9,000 crores.* The Taxation Enquiry Commission estimated (in Volume I of its report) net investment at current prices for 1950-51 and 1953-54. The magnitudes were Rs. 555

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* *First Five Year Plan*, p. 108.

**Taxation Enquiry Commission Report, New Delhi 1955 Vol. I. p. 138.

***Second Five Year Plan, pp. 3 & 11

This was subsequently published in *Papers on National Income and Allied Topics* ed. by V. K. R. V. Rao, S R. Sen and others, Bombay, 1960, pp. 122-34. The method followed is broadly the same as in the paper by M. Mukherjee and A. K. Ghosh estimating capital formation for 1948-49 (vide the Pattern of Income and Expenditure in the Indian Union: A Tentative Study, subsequently published in the *Bulletin of the International Statistical Institute*, December 1961) and in the paper on "Capital Formation in the Indian" Union jointly prepared by the C.S.O. and the Economic Division of the Ministry of Finance published in Papers relating to the formation of the Second Five Year Plan, October, 1955. *Ibid*, p. 121.

crores and Rs. 730 crores respectively.** The Second Five Year Plan estimated net capital formation (at 1952-53 prices) at Rs. 790 crores for 1955-56. This formed 7.3 per cent of national income (at 1952-53 prices) and was expected to be raised to 10.7 per cent by the end of the Second Plan.***

In a paper submitted to the first session of the Indian Conference on Research in National Income, Baldev Kumar of the Central Statistical Organization presented a 7-year series-estimates covering 1948-49 to 1954-55 for domestic fixed capital formation at current as well as 1948-49 prices. The series give sector-wise as well as overall estimates of fixed capital formation. In another paper read at the same conference, Honavar, Ghosh, Avadhani and Trikha of the Ministry of Finance presented totals of capital formation in the Indian Union for the years 1949-50 to 1954-55. These magnitudes were worked out at current prices by adding domestic savings to official donations and net borrowings from abroad as worked out from the Balance of Payments statistics. These efforts are signicant more for the exploration of the techniques of estimation and availability of basic statistics that could possibly be used for calculating net investment over a time-period than for the magnitudes indicated. Yet another attempt at estimation of net investment was made by the Statistics and Economics Departments of the Reserve Bank in a paper submitted to the Working Group on Resources for the Third Five Year Plan in July. 1959. These estimates had a wider coverage and were based on better data that had since become available, for example, from the balance sheet analysis of the public and private limited manufacturing companies conducted by the Reserve Bank and the Rural Credit Survey Reports for 1951-52 and 1956-57.*

The results of all the efforts at estimation of net capital formation cited above** were available when the Third Five Year Plan was being formulated.

Nonetheless, the available data suffered from the absence of a continuous series of comparable estimates of net capital formation at constant prices for the entire period. Therefore, what can be described as notable developments in this field were the three series estimates of capital formation as brought out by (a) the Reserve Bank of India (R.B.I.); (b) National Council of Applied Economic Research (N.C.A.E.R.); and (c) Central Statistical Organization (C.S.O.). The first two were primarily concerned

*The follow up Survey.

**Among works of individuals not cited above reference may be made to the following:

1. D. K. Rangnekar: *Estimates of capital formation in India for the period 1948-49 to 1951-52, Poverty and Capital Development in India*, 1958.
2. B. K. Barpujari: *National Income of India*; 1951-52 *to* 1955-56, *Papers on National Income and Allied Topics*, Vol. I, Indian Conference on Research on National Income, 1960.
3. S. J. Patel: "*Growth in Income and Investment in India and China*, 1952 60", *Indian Economic Review*, Feb. 1957.
4. W. Malenbaum: *Prospects for Indian Development*, 1962.

with the estimation of domestic savings and the estimates of net investment presented by them were, therefore, either incidental to or a step towards this primary task. In March 1960, the Reserve Bank published[1] its series of estimated domestic savings for 1950-51 to 1957-58 at current as well as 1948-49 prices which included, as a necessary constituent, estimates of net physical asset formation by households in the form of farm and non-farm investment in agriculture, urban and rural housing, as also increases in fixed assets and inventory by non-corporate industry. This series of domestic saving was refined and extended and republished in August 1961[2] and again in March 1965[3] together with a series of estimated net investment in the economy as a whole for the period 1950-51 to 1962-63.

This series gave estimates at current as well as 1948-49 prices. Total investment was measured by adding to the estimates of domestic savings for each year the amount of net capital inflow from abroad. The latter was arrived at by adjusting current account deficits in the balance of payments for official donations, retained earnings of foreign branches and subsidiaries, unpaid imports and the approximate amount of gold smuggled into the country. The National Council of Applied Economic Research published[4] in April 1961 its series — estimates of gross and net domestic investment at current as well as 1952-53 prices for the period 1948-49 to 1957-58.[5] These attempted to provide the base from which the estimated inflow of capital from abroad could be deducted to arrive at the rate of net domestic savings as a residual item. The estimates of investment were made separately for Government, corporate and individuals' sectors. The Central Statistical Organization estimated only gross capital formation for the entire economy for the period 1948-49 to 1960-61 both at current and 1958-58 prices.[6]

These estimates were based on the commodity flow approach[7], and no

1. *The Reserve Bank of India Bulletin*, March, 1960, pp. 296-327.
2. *The Reserve Bank of India Bulletin*, August 1961 pp. 1200-1.
3. *The Reserve Bank of India Bulletin*, March 1965, pp. 314 333.
4. National Council of Applied Economic Research: *savings in India*, New Delhi, 1961. pp. 12—14, 22—25.
5. This series was refined and extended to 1961-62 in "*Saving in India* 1950-51 to 1961-62" "N.C.A.E.R., July, 1965—but again refined and extended to 1964-65 and republished in "*Saving in India During the Plan Periods*" Monograph No. 16, June 1966, together with a series of estimated net investment in the economy as a whole for the period 1950-51 to 1964-65 at current and 1948-49 prices.
6. C.S.O.: *National Income Statistics Estimates of gross capital formation in India for 1948-9 to 1960-61*, New Delhi, 1961. (Estimates for net capital formation at current prices are also given and broken down into net fixed assets and inventory changes pp. 60, 64).
7. For a critical review of C.S.O. estimates see "*Chapter in the Capital Structure of the Economy over the Two Plan periods*" b y Uma Datta — a paper submitted to the Fourth Indian Conference on Research on National Income held at Bhopal in November, 1963.

sectoral break-down was provided. Only the break-up of gross fixed capital formation (at 1958-59 prices) into construction and machinery and equipment was separately given. The Table below shows the three series of estimates of capital formation between 1950-51 and 1960-61:

TABLE XXI

Estimate of Investment

(Rs. crores)

	Estimate by C.S.O. at 1958-59 prices	*Estimate by R.B.I. at 1948-49 prices*	*Estimate by N.C.A.E.R. at 1948-49 prices*	
			Direct	*Indirect*
1950-51	1,231	496	670	659
1951-52	1,329	688	808	778
1952-53	1,294	377	635	742
1953-54	1,344	538	663	769
1954-55	1,531	867	996	1,021
1955-56	1,832	1,086	1,275	1,233
1956-57	2,118	1,415	1,425	1,428
1957-58	2,259	1,230	1,486	1,677
1958-59	2,153	1,230	1,417	1,318
1959-60	2,248	1,246	1,367	1,496
1960-61	2,475	1,683	1,715	1,774

All the three series show a generally rising trend. The level estimate for 1960-61 is 2.0 times higher than in 1950-51 in the C.S.O. series, 3.4 times in the R.B.I. series and 2.6 times in the N.C.A.E.R. series. The S.C.O. series, however, start at a considerably higher level and remain so throughout for two reasons first, these estimates are for gross and not net capital formation and do not allow for capital consumption. Secondly, they are at 1958-59 prices, which were considerably higher than 1946-49 prices on which the N.C.A.E.R. or R.B.I. estimates are respectively based. The N.C.A.E.R. estimates for net investment are also consistently higher than the R.B.I. estimates. This is partly due to certain adjustments made, for example, for changes in inventory valuation. However, the differences between the R.B.I estimates and N.C.A.E.R. estimates have been narrowed down after certain refinements and both the series have tended to move quite close to the net estimates of capital formation by C.S.O. given in the Appendix to its paper.

The authors of these series themselves admit the limitations of the estimates emanating from restricted and inadequate basis, and the somewhat arbitrary assumptions underlying the estimational procedure adopted for certain components. Till such time as more refined and reliable estimates of net capital formation at constant prices are available for different sectors and by forms of investment in the various lines of activity in each sector, one cannot go beyond making a general statement that the step-up in the rate of real income growth in the fifties was

accompanied by a substantial step-up in the rate of net investment in the economy, and the latter must have contributed to the former in a significant manner.

Some interesting light on this aspect is, however, obtained when we turn our attention to some alternative sources of data. Three attempts have been made in recent years to estimate the stock of reproducible tangible wealth in India, which broadly corresponds to the stock of capital employed in economic activity. The first estimate was made by Uma Datta and Vinod Prakash[1] for the year 1949-50, the second by Mukherjee and Sastry[2] again for 1949-50, and the third by the Department of Statistics[3] of the Reserve Bank of India for the year 1960-61. All the three estimates are at current prices and give overall estimates as well as the sectoral break-downs. The Reserve Bank estimates for 1960-61 follow closely the estimates of Mukherjee and Sastry and are made on comparable lines. They are also presented side by side as estimates for the two points of time, 1949-50 and 1960-61. These estimates have been reviewed by Uma Datta in a paper[4] read at the Fourth Indian Conference on Research in National Income held in Bhopal in November 1963. This latter paper converts the 1949-50 estimates of Mukherjee and Sastry to 1960-61 price base, in order to study the change in the stock of reproducible tangible wealth in real terms between 1949-50 and 1960-61. The sectoral break-downs in the original estimates have also been rearranged in conformity with the grouping in the sectoral estimates of net domestic output available in National Income Estimates. This has been done to work out the capital-output ratios for the various sectors and the economy as a whole.

The Table XII constructed on the basis of the data in the paper by Uma Datta brings out some interesting aspects of economic growth since 1949-50:

Although the estimates of reproducible tangible wealth like those of net capital formation cited in the preceding paragraphs are also weak in parts and do not warrant reading too much into them, the broad trends indicated by them are worth noting. The data set forth in the Table XII shows that reproducible tangible wealth has grown over the period 1950-61 in real terms at a compound rate of a little over 4 per cent per annum, while number of workers employed has increased at a compound

1 "*An Estimate of the Reproducible Tangible Wealth in India*, 1949-50", Papers on National Income and Allied Topics, Vol. I, 1960, pp. 247-58.

2 *An Estimate of the Tangible Wealth of India, Income and Wealth Series VII* — The Measurement of National Wealth Association for Research in Income and Wealth.

3 "*Estimates of Tangible Wealth in India*", Reserve Bank of India Bulletin, January 1963,. pp. 8-19.

4 *op. cit.*,

TABLE No. XII

Reproducible Tangible Wealth: Net Domestic Product and Workers Employed
(At 1960-61 prices)

	1949-50	1950-51	1960-61	*Cumulative rate of growth per cent per annum* 1949-61	1950-61
Reproducible tangible wealth (Rs. crores)	20,622	21,224	32,164	4.1	4.2
Net domestic product (Rs. crores)	9,834	9,867	14,210	3.4	3.7
Capital output ratio	2.10	2.15	2.26	—	—
Workers (million)	N.A.	139.5*	188.4*	—	3.0
R.T.W. per worker (Rupees)	—	1,521	1,707	—	1.2
Output per worker	—	707	754	—	0.7

*Refers to 1951 and 1961 Census years.
Source: 1961 Census.

rate of 3 per cent per annum. As a result, capital per worker has gone up from Rs. 1,521 in 1950-51 to Rs. 1,707 in 1960-61, registering a growth at the compound rate of over 1 per cent per annum. This slow improvement in capital per worker must have contributed to the growth of net domestic product over the same period, which occurred at a compound rate of 3.7 per cent per annum. This is reflected in net domestic product per worker going up in real terms from Rs. 707 in 1950-51 to Rs. 754 in 1960-61. Even so, the capital intensity in the economy has only slightly improved. Capital-output ratio rose from 2.10 in 1949-50 to 2.15 in 1950-51 and 2.26 in 1960-61. This may, in part, explain the slow rate of growth of output during the period as also suggest the need for a still faster rate of growth in reproducible tangible wealth in future years, if capital intensity and, therefore, productivity of the economy, is to improve faster, and output per worker is to register a sharper increase from 0.7 per cent per annum achieved during the period (1950-61).

Another interesting feature is brought out by the XIII Table:

The shift in the sectoral shares of net output over the period broadly conforms to the shift in the sectoral shares of the stock of reproducible tangible wealth, the only exception being Railways and Services. The share of railways in net output has improved but its share in the stock of reproducible tangible wealth has gone down. This is quite likely since the period has been one of heavy expenditure on renewal and replacements of railways' fixed assets, and these normally contain elements of improved quality which go to enhance productivity. Further, a more effective utilization and increased turn over of the rolling stock is reported to have taken place, which must have also added to railways' productivity.

TABLE XIII

Sectoral Distribution of Reproducible Tangible Wealth and Net Output
(At 1960-61 Prices)

(Per cent)

	Reproducible Tangible Wealth		*Net Output*	
	1949-50*	1960-61	1949-50	1960-61
Agriculture	29.4	28.2	51.8	48.6
Mining	0.6	0.6	0.9	1.1
Large enterprises	10.2	16.1	6.9	9.3
Small enterprises	4.6	3.7	10.3	7.9
Railways	9.6	8.6	2.2	2.5
Communications	0.6	0.6	0.3	0.4
Trade and transport	17.1	17.3	13.2	13.5
Services	27.9	24.9	14.4	16.7
Total:	100.0	100.0	100.0	100.0

*Both were exceptionally good year for agriculture.

Part of the increase in output may also have come from improvement in the efficiency of workers employed quite independently of the increase in capital per worker. As for the services sector, the improvement in its share of net domestic product despite decline in its share of the stock of reproducible tangible wealth is quite legitimate to expect, since it includes net output of Government administration the expansion of which reflects mainly an increase in the number of employees. The shift in sectoral distribution brings out pointedly the impact of the Plans in initiating a structural transformation of the economy; the sharp rise in the share of large enterprises in both net output and the stock of reproducible tangible wealth provides the evidence.

In the preceding paragraphs, attention has been concentrated on data throwing light on developments in the fifties. In recent years, significant strides have been made in improving on the data on saving and capital formation as in the construction of flow-of-fund accounts. The C.S.O. published in 1963 the Report of its Working Group on the construction of flow-of-fund accounts of the Indian economy for 1957-58. Based on the flow-of-fund approach, K. C. Sharma's paper on "Financing of capital formation in the public sector, 1951-52 to 1960-61" read at the Fourth Annual Conference on Research in National Income provided a detailed analysis of the public sector investment and its financing pattern. The construction of flow-of-funds for the various sectors of the Indian economy has since been further refined and its scope extended by the Reserve Bank of India as revealed by the various studies published in its monthly bulletins.

The R.B.I. is also continuously engaged in improving its series on saving and investment. The latest development in the field is the C.S.O.'s

publication in 1969, of its estimates of saving and capital formation in India for 1960-61 to 1965-66. In its original monograph published in 1962, the C.S.O. had derived its saving estimates in an indirect fashion by deducting from its estimates of gross capital formation, the corresponding figures of net capital inflow from abroad. Their estimates of saving, now released, have been built up directly for three sectors (*e.g.* public, corporate and household) and have been added up to get estimates for the economy as a whole. As regards the C.S.O.'s estimates of capital formation, they are based mainly on the expenditure-flow approach. The relevant magnitudes which emerge are as follows:

TABLE XIV

Estimates of Capital Formation

Year	*At current prices*	*At* 1960-61 *prices*
1960-61	1,665	1,665
1961-62	1,789	1,624
1962-63	1,920	1,794
1963-64	2,353	2,120
1964-65	2,681	2,286
1965-66	3,056	2,442

Mention may also be made of some other related developments in this field. In February 1957, the Ministry of Finance issued an economic classification of the Central Government Budget for 1957-58. This brought out the magnitudes of net investment in construction and machinery and equipment directly undertaken by the Central Government as also the financial assistance given to other sectors of the economy for capital formation. This work was extended to the transactions of the State Governments and non-departmental undertakings of the Central Government for the years 1951-52 to 1960-61. The economic classification of the transactions of these entities together with that of the Central Government since 1951-52 had enabled the construction of a time-series of net investment by the Central and State Governments together for the period 1951-52 to 1960-61.* The scope of work has since been extended. The brochure on economic classification of the Central Government issued in 1967 contained a review of developments in the first three Five-Year Plans and also initiated an economic-cum-functional classification which is now brought out every year. Some of the State Governments have also started bringing out an economic classification of their respective budgets. The transactions of the public sector are also presented in terms of national income categories in the C.S.O.'s Annual White Paper on National Income.

*Reference may be made in this connection to A.V.N. Iyengar's paper — "Saving and investment of the public sector 1951-52 to 1960-61" read at the Fourth Annual Conference on Research in National Income.

Fairly satisfactory estimates are available for capital formation in the public sector. The following Table presents the data on net capital formation worked out by the Ministry of Finance on the basis of the economic classification of the transactions of public authorities.

TABLE No. XV

Net Capital Formation by the Public Authorities

(Rs. crores)
(At current prices)

	1951-52	1955-56	1960-61
1. Central Government Administration and departmental industrial and commercial undertakings	64	103	213
2. Central Government non-departmental industrial and commercial undertakings	3	17	175
(a) Industry	2	10	150
(of which, steel industry)	(—)	(3)	(112)
(b) Mining	—	—	32
(c) Transport	1	4	8
(d) Trading and other undertakings	—	3	5
3. State Government Administration and departmental industrial and commercial undertakings	150	253	346
Total	217	373	754

The Table brings out the sharp rise in the level of net capital formation during the period covered by the first two Plans. The level of total investment by public authorities in 1960-61 was twice the level in 1955-56 and three and a half times the level in 1951-52. The bulk of the net investment by Central Government administration and departmental undertakings was in railways, while the bulk of net investment by non-departmental Central Government undertakings was in basic industry (steel, fertilizers, chemicals and electricals) and by State Government Administration and departmental undertakings in irrigation works, power projects, roads and road transport schemes.

The break-down of net investment by form of investment is shown in the following Table:

TABLE No. XVI

Net Investment by Form of Investment

(Rs. crores)
(At current prices)

	1951-52	1955-56	1960-61
1. Construction	158	342	503
2. Machinery and equipment	14	62	186
3. Inventory accumulation	45	(—)31	65
Total	217	373	754

The sharp swing in favour of investment in mahinery and equipment during the Second Plan reflects the higher priority given to industry in public sector investment.

Although the figures given above are in current prices, the rise in public investment is so large that even if allowance were made for the price rise during the period, a marked step-up in public investment would still be indicated. This is corroborated by the following Table giving net investment by form of investment at 1960-61 prices:

TABLE No XVII

Net Investment by Form of Investment

(Rs. crores) (At 1960-61 prices)

	1951-52	1955-56	1960-61
1. Construction	198	413	503
2. Machinery and equipment	17	71	186
3. Inventory accumulation	48	—42	65
Total:	263	442	754

Note: The deflators used are based on:

(1) Price Index for Construction (*vide* R.B.I. Bulletin, January 1963, p. 19).

(2) Price Index for machinery and transport equipment (vide R.B.I. Bulletin, January 1963, p. 19).

(3) Economic Adviser's Wholesale Price Index.

Public investment promotes income growth both directly and indirectly. Wage and salary component of investment outlays on public construction adds to the income stream directly, while outlays on domestically produced material inputs stimulate output increases in the supplying sectors by encouraging utilization of excess capacity, if any, and installation of additional capacity. Public investment on social and economic overheads generates external economies, and removes bottlenecks to expansion in productive activities. These, in turn, stimulate further investment and output increases in the rest of the economy. Investment creating additional capacity in public enterprises brings about increases in their net output after it goes into production. The increase in output may, however, not occur in the same period in which investment is made. The output increases in such undertakings also induce output increases in other sectors by creating additional demand. All these aspects of growth promotion by public investment cannot be reduced to a common measure, and the growth of net output of public authorities during any period of public investment is but limited aspect of income growth stimulated by it. However, even in this limited sense the period under consideration registered a substantial increase in income generated by public investment. The relevant data are set forth in the Table XVIII:

TABLE XVIII

(Rs. crores)
(At current prices)

	1951-52	1955-56	1960-61
Construction	59	122	196
(i) Central Government	17	34	89
(ii) State Governments	42	88	107
Net output of industrial and commercial undertakings	255	311	436
(i) Central Government	211	250	347
(ii) State Governments	44	61	89
Total	314	433	632

Note: (a) Central Government includes adminstration and departmental and non-departmental commercial undertakings.
(b) State Governments include administration and departmental commercial undertakings.

For the sixties, a combined analysis based on the operations of the Central and State Governments is not available. However, having regard to the fact that the total provision for capital formation out of the budgetary resources of the Central Government accounts for the bulk of capital formation undertaken in the public sector, an analysis of data based on the economic classification of the Central Government budget appears meaningful.

TABLE XIX

(Rs. crores)

	1960-61	1965-66	1966-67	1967-68	1968-69	1969-70 (R.E.)	1970-71 (R.E.)
Gross capital formation	865	1,806	1,793	1,675	1,660	1,770	2,005
(i) Direct	311	520	500	467	276	507	615
(ii) Indirect (*i.e.* through assistance to States, Union Territories and Public Undertakings etc.)	554	1,286	1,293	1,208	1,384	1,263	1,390

The second decade of planning also provides substantial evidence of brisk investment activity. For 1970-71, the total capital formation financed out of the Central Government budget shows an increase of 120 per cent over the level of capital formation in 1960-61. These estimates are, of course, at current prices. However, the step-up is so large that even after allowing for the price factor, a substantial increase in the level of the investment activity should emerge.

The marked step-up in the investment outlays provided in the Fourth Five Year Plan further indicates the order of effort visualized in order to

quicken the pace of economic progress. The Table below gives the comparable figures for the successive Plans:

TABLE XX

(Rs. crores)

	I Plan	II Plan	III Plan	IV Plan
Public sector investment	1,560	3,650	6,300	13,655
Private sector	1,800	3,100	4,100	8,980
Total:	3,360	6,750	10,400	22,635

It may be noted that whereas the investment in the Third Plan was a little more than the total investment undertaken in the preceding two Plans, the provision in the Fourth Plan is a little more than the sum total of investment undertaken in the first three Plans taken together. As a result of the investment activity as postulated in the Fourth Plan document, the rate of investment was expected to be stepped up from 11.3 per cent of national income in 1968-69 to 14.5 per cent in 1973-74. The incremental capital-output ratio works out to 2.0 for the Fourth Plan as compared with 2.4 for the first three Plan periods. Consistent with the strategy of self-reliant growth, the proportion of inflow of foreign aid to national income will come down from 2.5 per cent to 1.3 per cent and the rate of domestic saving is expected to rise from 8.8. per cent in 1968-69 to 13.2 per cent in 1973-74. This means diverting to saving 28 per cent of increase in national income during the Fourth Plan period.

III. Domestic Savings and Net Inflow of Foreign Capital

The setting apart of an increasing proportion of domestic resources for investment involves a progressive step-up in the rate of domestic savings. Under conditions of rising national income, it implies a corresponding restraint on increases in domestic consumption. This is the cost borne by the community for speedily building up a prosperous economy, which will provide for greater rise in consumption standards in future years and thereby compensate the community for the consumption sacrificed during the construction phase. The immediate cost to the community, however, can be kept down to the extent it is possible to draw upon real resources of the rest of the world by augmenting net capital inflow into the country. This implies accelerated mobilization of others' savings for stepping up domestic investment and to that extent obviating the need for the community to forgo increase in consumption. This requires an analysis of what has been the relative contribution of domestic savings and net capital inflow in attaining the step-up in the rate of domestic investment since the commencement of planning and what relative role could be assigned to them for providing real resources required for accelerating the rate of investment in future years?

The analysis of the relative role of domestic savings and net capital inflow in domestic capital formation in the recent past requires a series of the estimates for each at constant prices. The first exploratory attempt to build estimates for domestic savings was made by the Taxation Enquiry Commission for the year 1953-54[1]. This was followed up by the officials of the Union Ministry of Finance who attempted a more detailed estimation and constructed a series for the years 1949-50 to 1954-55[2]. Both the series gave estimates at only current prices and were based on institutional data available in published sources. The successive Five Year Plans, however, indicate the rate of domestic savings attained in the base year and the target to be reached in the last year of each Plan. The First Five Year Plan[3] placed its estimate of domestic savings at 1948-49 prices around Rs. 450 crores for 1950-51. This formed about 5 per cent of the estimated national income and was to be raised to Rs. 675 crores or around 7 per cent of national income by the end of the Plan. The Second Five Year Plan placed the rate of domestic savings attained in 1955-56 at Rs. 731 crores or 7.0 per cent of the national income, both estimated at 1952-53 prices. The target to be attained in 1960-61 was fixed at 9.7 per cent of national income[4]. The Third Plan estimated domestic savings to have reached 8.5 per cent of national income in 1960-61; this was to be raised to 11.5 per cent by the end of the Plan period[5]. More systematic attempts at savings estimation have been made since the publication of the Third Five Year Plan by (a) the Reserve Bank of India[6] and (b) the National Council of Applied Economic Research[7]. Both R.B.I. and N.C.A.E.R. have made direct estimates of domestic savings on the basis of institutional data following the balance sheet and income-expenditure approach for different sectors. Their sector-wise as well as overall estimates are presented at current prices as well as constant prices. For the constant price series, both R.B.I. and N.C.A.E.R. estimates use 1948-49 prices. Both series of direct estimates give estimates for public sector, private corporate sector and individuals or household sector separately, and for the latter a breakdown by forms of savings is also provided. In addition to direct estimates, N.C.A.E.R. has also given a series of indirect estimates derived by deducting from total net investment the amount of net disinvestment

1. *T.E.C. Report Vol. I.p.* 138.
2. *Savings in the Indian Union*, 1949-50 *to* 1954-55, published in *Papers on National Income and Allied Topics*, ed. by Rao, Sen and others, pp. 107-21.
3. *The First Five Year Plan*, p. 108.
4. *The Second Five Year Plan*, p. 74.
5. *The Third Five Year Plan*, p. 28.
6. *op. cit.*, For a pioneer attempt in this direction see V. V. Bhatt: "Savings and Capital Formation" *Economic Development and Cultural Change*, April 1959.
7. *op. cit.*,

abroad (*i.e.* net capital inflow from the rest of the world). This series is also presented at current as well as 1948-49 prices.*

TABLE XXI

Estimates of Saving

(Rs. crores)

	R.B.I. At current prices	*R.B.I.* At 1948-49 prices	*N.C.A.E.R.* At current prices	*N.C.A.E.R.* At 1948-49 prices
1950-51	541.9	503.2	733.1	674.4
1951-52	529.4	483.2	668.7	608.5
1952-53	408.3	393.3	670.3	643.4
1953-54	565.0	540.9	700.0	665.0
1954-55	764.2	817.4	895.6	958.3
1955-56	970.5	1,019.2	1,144.1	1,201.3
1956-57	1,076.4	1,047.2	1,093.3	1,060.5
1957-58	797.8	762.7	1,058.7	1,016.3
1958-59	931.4	861.1	1,140.4	1,049.2
1959-60	1,102.0	1,009.2	1,247.3	1,135.1
1960-61	1,371.9	1,235.2	1,408.4	1,267.6

Both the series of estimates (R.B.I. and N.C.A.E.R.) suffered from weakness in parts; nevertheless, both showed about the same trends, if the level differences emerging from adjustments for changes in inventory valuation, and differences in assumptions, method of estimation and coverage of certain components like inventory accumulation and rural and urban constructions were ignored.

Both the R.B.I. and N.C.A.E.R. have attempted to provide a picture of the financing of net investment by giving estimates of net capital inflow from abroad for the corresponding years. These estimates were based on balance of payments statistics adjusted for items like retained profits

TABL XXII

Net Capital Inflow From Abroad

(Rs. crores)

	R.B.I. At current prices	*R.B.I.* At 1948-49 prices	*N.C.A.E.R.* At current prices	*N.C.A.E.R.* At 1948-49 prices
1950-51	— 7.9	— 7.3	— 4.99	— 4.59
1951-52	+224.4	+204.8	+218.86	+199.16
1952-53	— 17.0	— 16.4	— 8.45	— 8.11
1953-54	— 3.5	— 3.3	— 2.46	— 2.34
1954-55	+ 46.5	+ 49.7	+ 35.26	+ 37.73
1955-56	+ 63.2	+ 66.4	+ 70.11	+ 73.62
1956-57	+337.9	+367.5	+376.21	+364.92
1957-58	+489.1	+467.6	+489.46	+469.88
1958-59	+399.3	+369.2	+399.30	+367.36
1959-60	+258.3	+236.6	+266.80	+242.79
1960-61	+497.3	+447.7	+497.05	+447.35

*C.S.O. has also estimated gross domestic savings for the period 1948-49 to 1959-60 and net domestic savings for 1955-56 to 1959-60. But both are at current prices only and a large part pertaining to the savings of private non-corporate sector derived as a residual by deduction from the estimates of gross capital formaton, the savings of the public and private corporate sector estimated on the basis of income-expenditure accounts, C.S.O.; National Income Statistics — *Financing of Gross Capital Formation for 1948-49 to 1959-60, New Delhi.*

of foreign companies, unpaid imports etc., which do not figure in the payments data. Here too, the estimates were at current prices as well as constant (1948-49) prices. Since the method and basis of estimation is common except for some minor differences, there was again perfect conformity between the trends of the two series.

Except in 1951-52, the inflow of foreign capital was hardly significant during the First Plan period. In contrast, data show a marked dependence on this source of capital formation during the Second Plan; in terms of both these series, the net capital inflow from abroad accounted for about one-fourth of the total investment in 1960-61.

Mention has already been made of the C.S.O.'s estimates of savings and capital formation published in 1969—these cover the period 1960-61 to 1965-66. The following Table shows the relative rates of domestic and foreign saving in financing capital formation during the Third Plan period, as revealed by C.S.O. data.

TABLE XXIII

Domestic and Foreign Saving

Year	*Domestic saving proportion (in per cent) to national income*	*Foreign saving proportion (in per cent) to national income*
1960-61	8.4	3.4
1961-62	9.1	2.3
1962-63	9.6	2.9
1963-64	11.1	2.6
1964-65	10.2	2.9
1965-66	12.1	2.7

(The C.S.O.'s estimate of domestic saving do not agree with those given in the Plan documents. The Planning Commission's estimate of domestic saving is 8% of national income for 1960-61 and 10.5% of national income for 1965-66.

What emerges out of all this is that while the rate of net domestic investment during the First Plan period was rendered possible by a corresponding step-up in the rate of net domestic savings, the rate of net domestic savings during the subsequent Plans has not been adequate to finance the rising levels of investment activity. During the first half of the Second Plan period, the inflow of resources from abroad was financed largely by liquidation of India's foreign exchange reserves. Thereafter, domestic savings have been supplemented essentially by external assistance. Consequently, the extended scale of real resources provided by the rest of the world through net capital inflow into the country has been an important factor underlying the acceleration of the rate of domestic investment during the planning era. This net capital inflow rose from 0.6 per cent of national income in 1956-56 to 3.4 per cent of national income in 1960-61; it stood at 2.7 per cent in 1965-66.

During the period of Annual Plans, there was a declaration in the rate of domestic saving; the rate of domestic saving, according to the Planning Commission, stood at 8 per cent of national income in 1967-68. The strategy in the Fourth Plan enjoins that concessional imports of food-grains will stop by 1971 and the dependence on net foreign aid by the end of the Fourth Plan will be brought down to about one-half of the 1968-69 level. The objective is to dispense with external assistance completely by 1980-81, and to attain it, the rate of dometic saving has to be stepped up from 8.8 per cent in 1968-69 to 13.2 per cent in 1973-74 and further to 18 per cent in 1980-81.

Effort has, therefore, to be made to accelerate the growth of both public and private savings. The following Table based on the magnitudes emerging from the economic classification of the Central Government Budget shows the growth of the Central Government saving during 1951-52 to 1970-71:

TABLE XXIV

Central Government Savings (net)

(Rs. crores)

	First Plan 1951-56	*Second Plan* 1956-61	*Third Plan* 1961-66	*Annual Plans* 1966-69	1969-70 (*R.E.*)	1970-71 (*R.E.*)
1. *Savings of Government, Administration*	259	236	1,012	298	81	231
2. *Savings of departmental undertakings*	77	—18	353	123	59	111
(a) Retained profits	121	171	297	54	37	87
(b) Depreciation provision	171	245	435	333	116	124
Less (c) Renewals and Replacements	215	434	379	264	94	100
Total	336	218	1,365	421	140	342

The above Table shows that the Central Government saving in the Third Plan was about six times the amount of saving generated during the Second Plan. The rate of saving declined in the period of Annual Plans, reflecting the sluggishness in the Government revenues and receipts of public undertakings and also the growth of such expenditures as provision for food subsidy and large disbursements on account of increases in dearness allowance.

As stated earlier, there has to be a sharp step-up in the rate of domestic saving if the rate of investment has to be raised and dependence on

external assistance reduced. The Table below shows the sector-wise break-up of domestic saving expected to take place in the next decade:

TABLE XXV

Ratio of Net Domestic Savings to National Income by Sectors: 1968-69 to 1980-81*

Sector	1968-69	1973-74	1980-81
Household	6.4	7.6	8.4
Corporation	1.0	1.1	1.4
Public	1.4	4.5	8.2
Total Domestic Savings	8.8	13.2	18.0

*Fourth Five Year Plan 1973-74.

What emerges is the crucial role of public saving. While the saving of the household sector is to rise from 6.4 per cent in 1968-69 to 7.6 per cent in 1973-74 and further to 8.4 per cent in 1980-81, and that of corporate sector from 1.0 per cent to 1.1 per cent and further to 1.4 per cent during these respective years, the ratio of public saving to national income is expected to rise from 1.4 per cent in 1968-69 to 4.5 per cent in 1973-74 and further to 8.2 per cent in 1980-81. The projected order of increase in public saving signifies the effort that will be needed by the public authorities to mobilize additonal resources. This throws a tremendous responsibility on the public sector and implies in terms of additional tax effort that the proportion of tax revenues to national income will have to be raised from about 14 per cent now to about 18.5 per cent by 1980-81.

CHAPTER XVIII

CONSUMPTION AND WELFARE

A good deal of information on household consumption expenditure was collected by comparable methods in the National Sample Survey (N.S.S.) in the form of 'rounds' of survey, year by year, for many years. The aggregate value of consumption per person* of a household may be used as an approximate indicator of the level of living of the household. For any given round of the N.S.S., it is possible to arrange the sample households in ascending order of the aggregate value of the total per capita consumption expenditure per month**; such ordering would correspond approximately to increasing levels of living. The sample households can then be divided into a suitable number of groups of equal size*** from the bottom. If, say, ten equal groups each of ten per cent (*i.e.*, ten decile groups) are used, then the bottom ten per cent would represent the poorest section of the people, and the top ten per cent the richest households. A comparison of the consumption in physical terms, or in money terms, of particular items, or of all items of goods or services, for the ten different decile groups would supply information about disparities in the level of living between the ten decile groups.

Comparison Over Time: Detailed information on the consumption of a number of goods and services has been tabulated for seven rounds of the National Sample Survey. It is possible, in principle, to examine whether there has been any change, over time, in the distribution by size of particular items of consumption, during this period. In the case of expenditure on consumer goods and services, such comprisons over time would be meaningful only if all prices had remained the same or had changed in the same proportion. In fact, prices had changed continually. Conversion of all these prices into a standard constant price involved great technical difficulties, adequate information for this purpose is also not available. No attempt has, therefore, been made to study the distribution by size of expenditure at constant prices. One way of getting over the difficulty, at least partially, of making adjustments for changes in prices would be to consider, not the actual expenditure of different fractile groups but, the relative share of expenditure.

*Or, in ascending order of aggregate consumption expenditure per household as a whole. Results valid for the two types of ranking would be valid for ranking by any scale of adult equivalents.

**In the National Sample Survey, estimates are usually given for a 'standard month of 30 days'.

***That is, containing an equal number of persons of the estimated population; such groups of equal size are called 'fractile groups', in the terminology used in Fractile Graphical Analysis (F.G.A.).

Concentration Curves: By plotting on a graph paper the cumulative percentage shares of consumer expenditure against successive decile groups, it is possible to obtain the concentration curve for the distribution of consumer expenditure over fractile groups. If the distribution is equal, that is, in the purely hypothetical case when each person (or household) has exactly the same per capita expenditure, the concentration curve would be the same as the diagonal line at an angle of 45° with both the axes. In this case, if we continue to add the successive consumption expenditure of each person (or household), the accumulated sum of such expenditure would be exactly the expenditure of each person (or household), multiplied by the number of persons (or households). Therefore, the cumulative percentage share of total expenditure would be the same as the cumulative percentage of persons; all the points would then fall on the diagonal line mentioned above. The nearer the observed concentration curve is to this diagonal line of equal distribution, the greater will be the equality of distribution. Also, the farther away the observed concentration curve is from the diagonal line, the greater will be the inequality of distribution.

Rise in the Price of Cereals: The price of cereals was at its lowest level in rounds 8 and 9, and at the highest level in rounds 15 and 16. Relevant information on the respective price index number, period of survey, and the number of households (with about half the number in each subsample) which were covered in the survey in each of N.S.S. rounds 8, 9, 15 and 16, are given below:

STATEMENT I

N.S.S. Rounds, Period of Survey, Price Index of Cereals, and Number of Households in Combined Sample

N.S.S. round	*Price index of cereals 1952-53 price=100*	*Period of survey*	*Number of households*
8	77.4	July 1954-March 1955	1,833
9	73.3	May 1955-November 1955	1,600
15	105.6	July 1959-June 1960	7,144
16	103.2	July 1960-June 1961	3,703

It would be seen that the price index numbers for cereals were very low, 77.4 and 73.3 (with 1952-53 price = 100), in rounds 8 and 9; the index number increased to 105.6 in 1959-60, and was slightly lower, 103.2, in 1960-61. The general increase in the prices of cereals was about 45 per cent between 1954-55 and 1959-61. The period covered by survey rounds 8 and 9 with low prices, on the one hand, and the period covered by rounds 15 and 16 with high prices on the other, therefore, supply suitable data for the study of the effect of increase in prices on the consumption of cereals.

Index numbers of average prices of cereals in rounds 15 and 16, taken together, with corresponding prices in rounds 8 and 9, taken together, (base = 100) are shown in the Statement II. Decile groups are shown in column (1) — and the corresponding index numbers are given, separately, for sub-sample 1(s.s.1), sub-sample 2 (s.s.2), and the combined sample* in columns (2), (3) and (4), respectively, in the Statement II. Differences between the two estimates for sub-sample 1 and sub-sample 2 supply information on the margin of uncertainty of the estimates for the combined sample inclusive of both sampling and non-sampling errors. The index numbers are shown in a graphical form in Chart 1. It can be seen from the bottom line of the Statement II that the Index number for the whole (that is, 0 to 100 per cent) of the population was 145 showing that the general rise in prices of cereals was 45 per cent. For the lowest decile, or bottom 10 per cent of the population, index numbers, as shown in line 1, were of the order of 180 or 190, indicating that the price of cereals increased by 80 or 90 per cent in the case of the poorest section of the population. Index numbers for the second, third, and fourth deciles

STATEMET II

Index Number of Average Price of Cereals in N.S.S. Rounds (15, 16) with Price in Rounds (8, 9) As Base=100, By Fractile Groups, All-India Rural

Fractile group (per cent)	*s.s. 1*	*s.s. 2*	*combined*
0—10	178	191	183
10—20	165	162	159
20—30	158	154	158
30—40	161	151	158
40—50	154	142	149
50—60	143	141	144
60—70	138	149	145
70—80	138	139	139
80—90	135	141	137
90—100	123	137	129
0—100	145	145	145

were appreciably lower and the rise in prices was of the order of somewhat less than 60 per cent. For the fifth decile (line 5), the rise was of the order of 50 per cent. The percentage increase of prices gradually dropped in higher deciles, and was of the order of only 30 per cent in the tenth decile for the top 10 per cent of the population. The increase in the

*The information in the National Sample Survey was collected in the form of at least two (and sometimes, more) inter-penetrating net-work of samples (I.P.N.S.). These two samples are statistically independent and equivalent, and are called the two sub-samples (s.s. 1 and s.s. 2); pooling them together one gets the combined sample, that is, the sample as a whole.

price of cereals was thus relatively much greater for the poorer sections of the people.

In order to maintain the consumption of cereals at the same physical level, the increase in expenditure on cereals of poorer households would have to be relatively much larger than the increase of expenditure on cereals of the richer people. For example, the bottom 10 per cent, or the poorest section of the population would have to incur in rounds (15 and 16) something of the order of 80 per cent more expenditure, and the top 10 per cent of the population only about 30 per cent more expenditure on cereals, in comparison with their respective expenditure on cereals in rounds (8 and 9), in order to keep the per capita consumption of cereals in rounds (15 and 16) the same in physical terms as in rounds (8 and 9).

Changes in Shares of Cereals Consumption: Because the actual expenditure on cereals of the poorer households would have to be relatively greater in rounds (15 and 16), in order to keep the level of consumption the same in physical terms, the share of expenditure of the poorer sections would also be relatively greater in rounds (15 and 16) in comparison with their share of expenditure in rounds (8 and 9). The cumulative proportion of the population and the accumulated share of expenditure from the bottom decile would also be higher for each decile upto the ninth decile, and would become 100 per cent in the tenth decile, that is, for the population as a whole. Relevant data for consumption of cereals in rural areas in India are given in Statement III, in which column (2) shows the cumulative percentage of population from the bottom.

The cumulative shares of the quantity of cereals consumed upto each fractile group in rounds (3 and 9) are shown in column (3), and in rounds (15 and 16) are shown in column (4). The cumulative shares of the value of the cereals consumed, that is, the cumulative shares of expenditure on cereals,are given in column (5) for rounds (8 and 9), and in column (6) for rounds (15 and 16). The corresponding figures for total expenditure are given in columns (7) and (8).

In line 1 of the Statement III, for the bottom 10 per cent of the population, it can be seen from columns (3) and (4), that the shares of consumption of cereals, in physical quantities, was 6.28 per cent in rounds (8 and 9) against 5.52 per cent in rounds (15 and 16), showing a difference of 12.1 points* in consumption in real terms. From columns (5) and (6), it can be seen that the share of the money value of the consumption of cereals was 4.50 per cent in rounds (8 and 9) and 5.02 per cent in rounds (15 and 16), showing a rise of 11.6 points in the share expenditure of cereals. From line 11 of the Statement III, for the top

*This is a measure of the difference of the two percentages expressed as a percentage of the estimate for the period of low prices in rounds (8 and 9).

STATEMENT III

Average Cumulative Percentage Shares of Quantity and Value of Cereals Consumed and of Total Consumer Expenditure in National Sample Survey in Rounds (15, 16) (High Prices)-All-India Rural

No.	Cumulative percentage of population	Cereals				Total expenditure	
		Quantity		Value			
		rounds 8, 9	rounds 15, 16	rounds 8, 9	rounds 15, 16	rounds 8, 9	rounds 15, 16
1.	10	6.28	5.52	4.50	5.02	3.00	3.54
2.	20	13.80	13.24	10.61	11.96	7.29	8.54
3.	30	22.44	21.64	18.18	19.88	12.67	14.50
4.	40	32.46	31.05	27.12	28.78	19.05	21.38
5.	50	42.22	40.78	36.62	38.41	26.41	29.17
6.	60	52.68	51.26	47.28	48.84	35.00	37.98
7.	70	63.70	62.22	58.44	59.70	45.16	48.04
8.	80	74.74	73.49	70.43	71.46	57.47	59.95
9.	90	86.92	85.34	84.20	84.24	72.88	74.62
10.	100	100.00	100.00	100.00	100.00	100.00	100.00
*11	top 10%	13.08	14.66	15.80	15.76	27.12	25.38

*The bottom line 11 gives the respective shares of the top 10% of the population, which are obtained by subtracting the figures for the ninth decile in line 9 from 100 in each of cols. (3) to (8).

10 per cent of the population, it can also be seen that the share of consumption of cereals in physical terms increased from 13.08 per cent in round (8 and 9) to 14.66 per cent in rounds (15 and 16), showing a rise of 12.1 points, while the share of expenditure on cereals remained practically the same, about 15.8 per cent. Changes in the shares of the total consumption expenditure can be compared from figures given in columns (7) and (8). It can be seen from line 1, for bottom 10 per cent of the population, that the share of expenditure increased from 3.00 per cent in rounds (8 and 9) to 3.54 per cent in rounds (15 and 16), or by 18.0 points, which was more than the increase of 11.6 points in the share of the expenditure on cereals. From line 11, it can be seen that the share of total consumption expenditure of the top 10 per cent of the population had decreased from 27.12 per cent to 25.38 per cent, showing a reduction of 6.4 points. To sum up, for the bottom 10 per cent of the population, the share of consumption of cereals decreased by 12.1 points in physical terms but the share of expenditure on cereals increased by 11.6 points, and the share of total expenditure increased by about 18.0 points. For the top 10 per cent of the population, the position was quite different. The share of consumption of cereals in physical quantities increased by 12.1 points, while the share expenditure remained the same, and the share of total consumption expenditure decreased by 6.4 points. It is clear that disparities in the consumption of cereals had increased with the rise in prices of cereals.

Estimates of cumulative shares, for different decile groups, given in the Statement III, are shown in the form of concentration curves in Chart 2. Two concentration curves for consumption of cereals, in physical terms, are shown in green; and two corresponding concentration curves for consumption of cereals in terms of money, that is, the two concentration curves for the expenditure on cereals, are shown in red. For purposes of comparison, two concentration curves for the total consumption expenditure are given in black.

In each case, the solid graphs represent conditons in rounds (15 and 16) when prices were high, and the broken graphs represent conditions in rounds (8 and 9), when prices were low. It can be seen that the broken green graph, for the distribution of consumption of cereals in physical terms when prices were low, is nearer to the line of equal distribution than the solid green graph representing the distribution of consumption of cereals in physical terms when prices were high. On the other hand, in the case of the two graphs in red (for distribution of expenditure on cereals) and also the two graphs in black (for distribution of total consumption expenditure), the position is reversed; broken graphs, representing conditions when prices were low, are further away from the line of equal distribution than the solid graphs, representing conditions when prices were high. In other words, when prices increase, the distribution of consumption, in terms of money, tends to become more equal, but the distribution of consumption, in physical terms, tends to become more unequal. It must be noted that it is only when the increase of prices of cereals (or of other goods and services) are relatively greater for the poorer sections of the population that one would expect the distribution of consumption in terms of money values (that is, of consumption expenditure) to become more equal, and the distribution of consumption in physical terms to become more unequal.

Test of Significance of Change in Concentration: The greater equality of the distribution of total consumption expenditure when prices are high can be examined critically with the help of the two sub-sample estimates for s.s.1 and s.s.2 in the N.S.S. data for round 8 (July 1954-March 1955) and for round 16 (July 1960-June 1961) which are given in the Statement IV, and are shown graphically in Chart 3.

In the Statement IV, the cumulative percentages of the population are given in column (1); cumulative percentages of total consumption expenditure are given for sub-sample 1, sub-sample 2 and the combined sample for round 8 in column (2), column (3) and column (4) respectively; and corresponding cumulative percentages of consumption expenditure for round 16 are given in column (5), column (6) and column (7), resectively. It would be seen in the Statement IV that, for each of fractile (decile) group, all these figures for round 16 and when prices were high, are greater

STATEMENT IV

Cumulative Percentage Shares of Total Consumer Expenditure by Fractile Groups for Rounds 8 and 16 of the National Sample Survey: All-India Rural

Cumulative percentage of population	*Round* 8 (*July* 1954-*March* 1955)			*Round* 16 (*July* 1960-*June* 1961)		
	s.s. 1	*s. s.* 2	*combined**	*s.s.* 1	*s.s.* 2	*combined*
(1)	(2)	(3)	(4)	(5)	(6)	(7)
10	2.90	3.11	3.00	3.47	3.36	3.41
20	7.03	7.50	7.26	8.39	8.04	8.21
30	12.09	13.01	12.54	14.29	13.76	14.01
40	18.20	19.35	18.78	21.07	20.46	20.75
50	25.34	26.61	25.98	28.79	28.04	28.40
60	33.58	35.07	34.33	37.59	36.78	37.17
70	43.25	45.20	44.23	47.65	46.71	47.16
80	54.84	57.62	56.22	59.34	58.45	58.87
90	69.56	73.53	71.55	73.90	73.48	73.65
100	100.00	100.00	100.00	100.00	100.00	100.00

*No. of sample households: Round 8, 1833; Round 16, 3,703 which roughly hold the number in each sub-sample.

than the corresponding figures for round 16 when prices were high, are greater than the corresponding figures for round 8 when prices were low. The three concentration curves, for the figures given in columns (2), (3) and (4), for round 8, when prices were low, are shown in black in Chart 3; and the three concentration curves for figures given in columns (5), (6) and (7) for round 16, when prices were high, are shown in red in Chart 3. As already pointed out, in fractile graphical analysis, the geographical area bounded by the two sub-sample graphs gives the error-area of the combined graphs. Also, the 'separation' is given by the area lying between the two graphs for the two combined samples, that is, in this case, the area lying between the graph in solid red line and the graph in solid black line. It would be seen that the three graphs in red are completely separated from the three black graphs*, and are nearer the line of equal distribution. On the basis of studies on error-areas, it may be noted that such complete separation** indicates that the difference between the two distributions of total consumption expenditure during periods of high and low prices respectively, was statistically significant. It is, therefore, reasonable to think that, with an increase in prices, the distribution of expenditure on consumption did become more equal.

*With one exception at 9th decile for round 8, namely, the cumulative per cent share 73.53 for s.s. 2 in col. (3), is slightly greater than the corresponding value 73.48 in col. (6) for round 16.

**The size of the sample, *i.e.*, the number of households (1833 in round 8, and 3,703 in round 16) was evidently adequate for establishing the statistical significance of the separation.

Ranking of Concentration Curves by Price Levels: The concentration curves of consumption expenditure for seven N.S.S. rounds have been placed in order of increasing concentration of distribution (that is, in order of increasing distance from the diagonal line) in column (1) of the Statement V together with several series of index numbers of prices for the rural area.

STATEMENT V

Ranking of Concentration Curves for Per Capita Total Consumer Expenditure of Different N.S.S. Rounds in order of Increasing Concentration (Increasing Distance from the Diagonal or Equal Distribution Line) Against Index Numbers of Prices: All-India Rural

Sl. No.	*N.S.S. round in order of increasing concentration*	*National income deflator*	*N.S.S. price index of cereals*			*Wholesale price index (1952-53-100)*		
			bottom 10 percent	*bottom 20 percent*	*general population*	*cereals*	*other commodities*	*all commodities*
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	15	105.6	138	131	116	105.6	122.4	119.1
2.	16	107.2	141	133	118	103.2	131.3	125.9
3.	12	100.4	131	126	111	103.0	110.8	109.3
4.	13	102.1	117	116	108	98.7	109.5	107.4
5.	7	98.0	100	100	100	92.8	104.1	101.9
6.	9	91.9	76	75	79	73.3	95.5	91.2
7.	8	90.4	76	79	82	77.4	100.6	96.1

Each series of price index numbers has reference to a specific field of economic activity; the different series of price index numbers are, therefore, not strictly comparable among themselves. Nevertheless, they show general agreement in the up or down movements of prices. For the rural population, it would be seen that two top curves for rounds 15 and 16 (lines 1, 2) are associated with the highest levels of all the series of price index numbers; the intermediate curves for rounds 12 and 13 (lines 3, 4) are associated with intermediate levels of prices; and finally, curves for 7, 8 and 9 rounds, at the bottom (line 5, 6, 7) are associated with the lowest levels of prices.

Effect of Rise in Prices on Disparities: On the whole, the higher the price level in any round of the survey, the nearer is the position of the corresponding concentration curve of total consumption expenditure to the diagonal line, that is, the greater is the equality of distribution, by size, of total consumption expenditure. Conversely, the lower the level of prices during a round of survey, the greater is the inequality of distribution, by size, of total consumption expenditure. An increase in prices is thus associated with greater equality, and a decrease in prices, with greater inequality, of distribution by size of expenditure.

Association Between Higher Prices and Greater Equality of Distribution of Expenditure: This observed association between higher price levels and greater equality of distribution of consumption expenditure deserves further consideration. From the Statement V , columns (6) and (7), it is seen that the increase in the wholesale prices of commodities, other than cereals, was much greater than the rise in the wholesale price of cereals, and, almost certainly, was also greater than the rise in the retail price of cereals. Secondly, the rise in the price of cereals was relatively much greater for the poorer sections of the population; and it is very likely that the rise in the price of commodities, other than cereals, was also relatively greater for the poorer people. The poorer sections of the population would have to pay relatively higher prices to maintain the same level of real consumption, and their share of total consumption expenditure would increase without, however, an increase in their share of real consumption, in comprison with sections which were bettter off. That is to say an appreciable increase in prices would affect poorer sections more adversely, and would generally lead to an increase of disparities in consumption in real terms. It may be noted, however, that disparities may increase, or may remain the same, or may decrease, while the absolute level of consumption changes in one direction or in another. For social justice, it is necessary that the absolute level of real consumption should increase and inequalities should also decrease. Unfortunately, a rise of prices in India was found, very often, not only to have increased disparities but also to have lowered the absolute level of consumption in real terms of the poorest sections of the population*.

General Conclusion: From the information and analysis given in a separate paper**, it seems likely that there was some improvement in the level of living and an increase of opportunities in many directions for most of the people of India during the first decade of planning (1951-1961). The rate of growth of consumption was still low. Benefits arising from growth also seemed to have accrued, in a larger proportion,

*International comparison could not be made because it was not possible, upto 1966 or 1967, to secure, or to trace, published data, (or unpublished information to which access could be obtained) on changes in prices of cereals over time, separately, for different fractile groups or for different income brackets or different expenditure brackets, that is, separately, for households of different levels of living for any other country (not excepting, the (U.K., U.S.A., U.S.S.R., Japan, etc.).

**The present note is a slightly revised version of a note which was placed before the Seventh Conference of Commonwealth Statisticians in New Delhi in November 1970.

The opposite effects of rise in prices on concentration of consumption in money values and in real terms were placed by the author as Chairman with other materials before the Income Distribution Committee of India in February 1964, as a draft of part II of its report. Because of differences of opinion, further studies were undertaken during the next four years. As no unanimous decision could be reached, part II of the report was published in July 1969 excluding the detailed studies which the Committee decided would be published as a scientific paper by the author in his individual capacity.

to the richer sections of the people. In consequence, disparities between the rich and the poor did not generally decrease, but increased in many respects. The level of living is so low for a very large part of the population that it would be difficult to bring about an appreciable improvement in the absolute level of real consumption or a reduction of disparities without a large and rapid increase of income and availability of goods and services in the near future.

INDEX NUMBERS, BY FRACTILE GROUPS, OF AVERAGE PRICE OF CEREALS IN ROUNDS (15, 16) WITH PRICE IN ROUNDS (8, 9) AS BASE = 100.
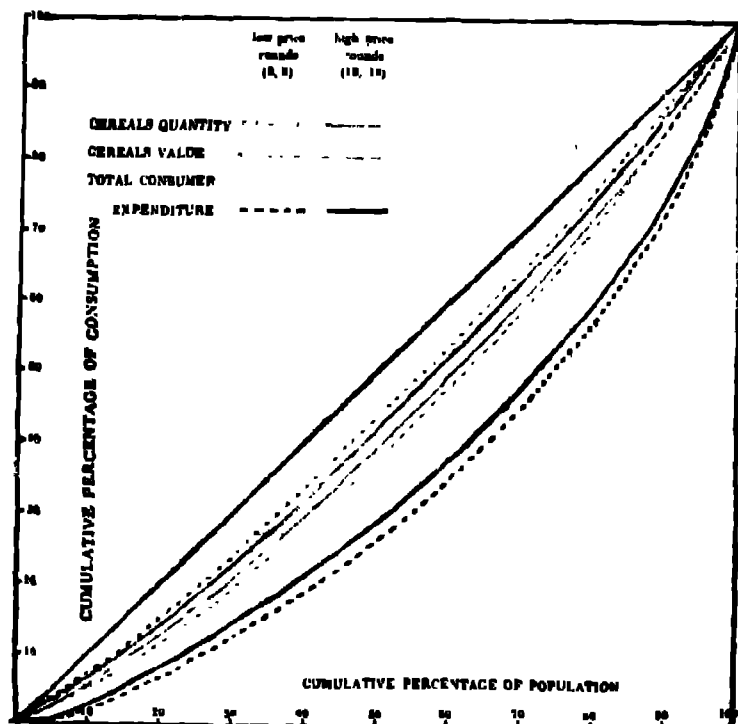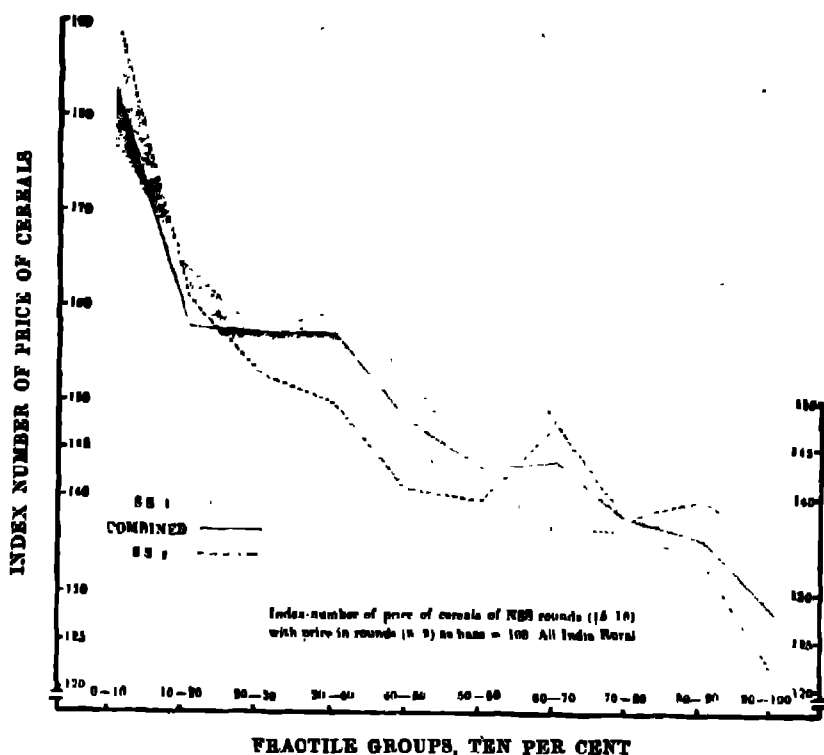
CHART 2 : NATIONAL SAMPLE SURVEY : ALL INDIA RURAL: CONCENTRATION CURVES FOR PER CAPITA CONSUMPTION OF CEREALS PER 30 DAYS, IN PHYSICAL TERMS (QUANTITY) AND IN VALUE TERMS AND ALSO FOR TOTAL CONSUMPTION EXPENDITURE IN ROUNDS (8, 9) AND (15, 16)
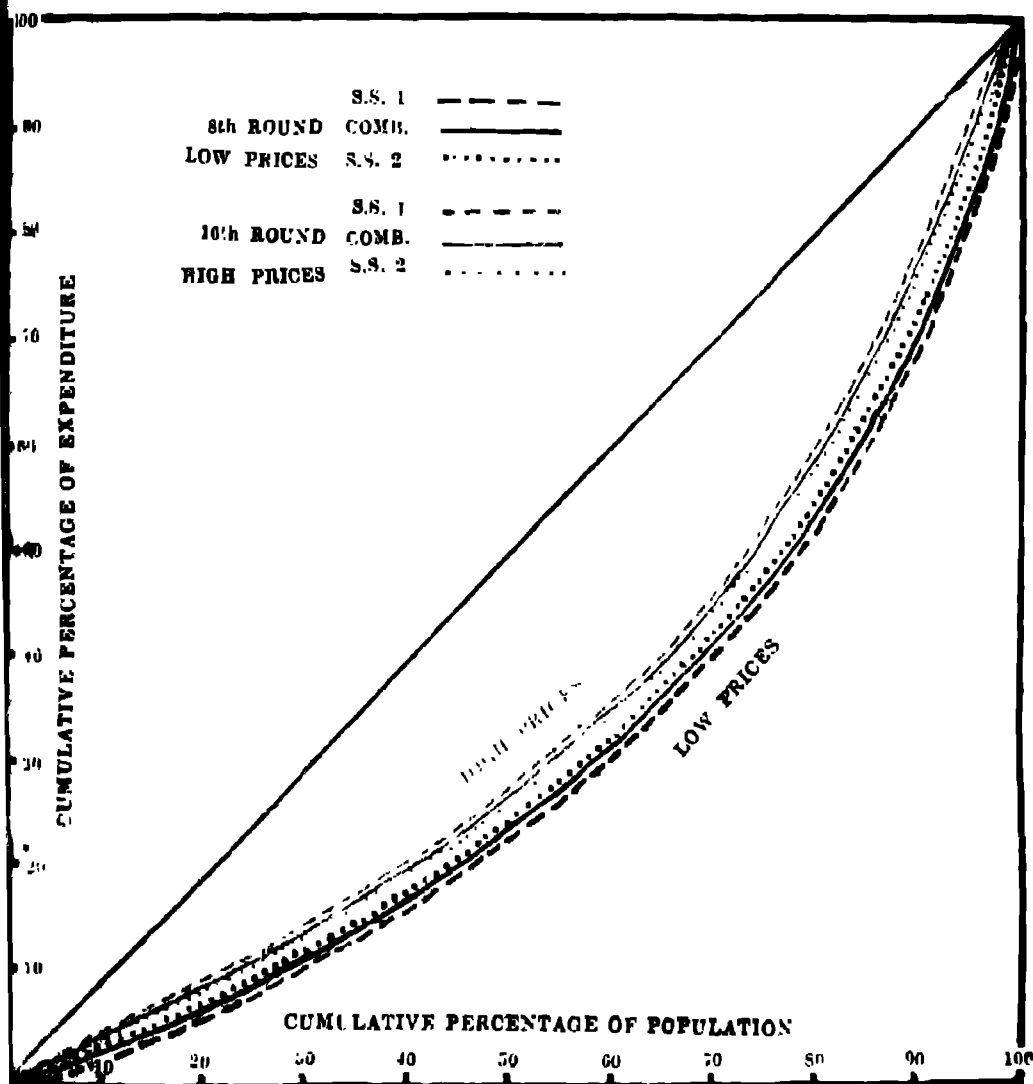
CHART 3 : NATIONAL SAMPLE SURVEY · ALL INDIA RURAL ROUNDS 8 AND 16 : CONCENTRATION CURVES FOR THE DISTRIBUTION OF TOTAL PER CAPITA CONSUMER EXPENDITURE PER 30 DAYS.

CHAPTER XIX

PLANS AND PROSPECTS

I. Objectives and Strategy

The Government resolution announcing the setting up of the Planning Commission in March 1950 started with a reference to the constitutional provisions bearing on the socio-economic objectives of the Constitution. The Fundamental Rights and the Directive Principles of the Constitution assure every citizen, among other things, adequate means of livelihood, opportunities for employment and a socio-economic order based on justice and equality. Thus, the basic objectives of planning were already given in the provisions of the Indian Constitution. These were stated in the First Five Year Plan in the following words:

> "The urge to economic and social change under present conditions comes from the facts of poverty and of inequalities in income, wealth and opportunity. The elimination of poverty cannot obviously, be achieved merely by redistributing existing wealth. Nor can a programme aiming only at raising production remove existing inequalties. These two have to be considered together. . . . ."

This concern for the removal of poverty has been basic to our approach and social development all through the last two decades and more. Where the bulk of the people live so close to the margin of poverty, the claim of social justice, of the right to work and equal opportunity and of a minimum level of living has obvious urgency.

The inter-relatedness between growth and social justice has been repeatedly emphasized in the Plans. It was also seen to extend to specific objectives as well. It was realized, for instance, that employment and development cannot be treated as independent of each other. This is how the First Plan viewed the problem: "In a country with vast reserves of unutilised manpower, the problem of employment has two aspects in relation to development. There is, in the first place, the need to make the maximum use of idle labour for the purpose of development. Here it is not so much a question of providing employment at existing or higher real wages but rather one of effectively mobilising all the available resources at minimum social cost. The second aspect of the problem is that of increase in pro-

ductivity of labour so that larger employment can be provided at rising levels of real income. This is, obviously, linked with the whole question of capital accumulation and technical efficiency." If productivity of labour cannot be increased in the short run, and particularly if the availability of basic essentials like foodgrains cannot be increased, a programme of full employment, designed primarily to put to work all idle labour, runs the risk of breaking down on account of excessive pressure of money incomes on available supplies. It was, therefore, the approach of the First Plan that in the first few years of development the accent should be on mobilization of idle manpower with as little increase in money incomes as possible rather than on full employment which, to be meaningful, must provide higher money as well as real incomes all round. The Plan, therefore, envisaged considerable expansion in irrigation, power, basic industries and transport and other services which would provide directly and indirectly new avenues of employment. It was foreseen that there would be problems of adjustment in the interim period when there would be a conflict between the need to reduce the social cost of maintaining unemployed labour and the need to raise productivity of labour, or the emergence of disparities between those classes in whose hands the new purchasing power went and those who had fixed incomes. These could be resolved only in the process of growth over time.

The planners were aware that a plan of development in the given conditions must in the main rely on domestic resources. There were obvious risks in excessive reliance on foreign aid. It was, however, recognized that there would be certain shortages which would tend to restrain the whole pace of development and that external resources were useful in meeting them. External assistance was envisaged to serve a two-fold purpose in this context: it would make available adequate supplies of foreign exchange, and, secondly, it would supplement the domestically generated investible resources. With a view to restricting the needs of external assistance to the minimum, the Plans accorded high priority to those lines of production which helped to reduce import requirements and increase export surpluses.

Taking into account the different objectives mentioned and taking note of the fact that in a given situation, it is necessary to assign certain relative priorities for determining an appropriate mode of action, the Plan decided to accord the top-most priority to agriculture including irrigation and power. This priority ensued partly from considerations of completing the schemes already in hand. It was further supported by the consideration that, without a substantial increase in the production of food and agricultural raw materials, it would be impossible to sustain a higher rate of industrial growth. The high priority to agriculture and to basic items of infrastructure like power and transportation inevitably limited resources available for industrial development in the public sector as well as for

expansion of social services. On the whole, the specific accent in the Plan on increase in production limited the scope for increase in social services.

The transformation of the economy that was envisaged called for an expanding and crucial role for the State. While it was appreciated that this need not result in wholesale nationalization of the means of production or elimination of private agencies in agriculture and industry, it was envisaged that there would be a progressive expansion of the public sector and a reorientation of the private sector to the changing needs of the economy. In the industrial sphere the roles of the two sectors were already defined in terms of the Industrial Policy Statement of 1948. The Government's industrial policy did not see any conflict between the two sectors. However, it underscored that private enterprise should have a social purpose and that the two sectors should function as interdependent organs of the national economy.

The analytics of the First Five Year Plan rested on a very simple model of growth. This was not explicitly presented; but it was implicit in the long-term perspective incorporated in the Plan. Such a model assumed that the rate of growth can be progressively stepped up if the proportion of the additional income that is saved and invested can be made to increase over time. It did not consider the structural difficulties inherent in the process of converting the available savings into investment. The selection of projects for Government expenditure seemed to be inspired by the ideas of providing the overhead facilities for promoting further economic development.

At the time of the formulation of the Second Five Year Plan, the objective of the socialist pattern of society came to be adopted. For the attainment of this goal it was realized that the State would have to play an increasingly active role even in areas outside infrastructure. It was deemed essential to expand public sector in the industrial field not only to initiate developments which the private sector was either unwilling or unable to undertake but also to shape the nature and pattern of investment decision in the entire economy througha acquisition of the so called "commanding heights". The public sector had also to play a special role in the context of acquisition and development of modern sophisticated technology. Since this technology required large-scale production and unified control and allocation of resources in certain major lines of activity, such as exploitation of resources in certain major lines of activity, minerals and basic and capital goods industries, it was decided that the State would have to bear the responsibility for new developments in these fields. It was implicit in this argument that public ownership and public control in these areas would present large scale and undesirable concentration of economic power.

These considerations called for a basic revision of the industrial policy

initiated in 1948. The new Industrial Policy Resolution of 1956 declared that all industries of basic and strategic importance or in the nature of public utility services would be in the public sector. It also made the State responsible for the development of these industries which were essential and required investment on a scale which only the State could undertake. Thus, the State was expected to assume direct responsibility for the future development of industries over wide areas.

The basic objectives of planned development incorporated in the First Five Year Plan were reiterated in the Second Five Year Plan. There was, however, a significant departure in that rapid industrialization and diversification of the economy was adopted as the core of development. As a logical corollary of this, it was expected that it was essential to provide for the development of basic industries and industries which make the machines needed for further development. This is how the strategy of the Second Five Year Plan emerged which reflected itself in the programmes of substantial expansion in iron and steel, non-ferrous metals, coal, cement, heavy chemicals and other industries of basic importance.

Though employment was included among the bosic objectives of the Plan, it does not seem to have received as much attention as it deserved in matter of investment allocation although the 'draft outline' prepared by the late Professor Mahalanobis sought to take the facts into account through proposing special allocations to highly labour intensive activities such as the handlooms. To quote the Second Five Year Plan: "The question of increasing employment opportunities cannot be viewed separately from the programmes of investment in the Plan. Employment is implicit in and follows investment, and it is, of course, a major consideration in determining the pattern of investment." The Plan, however, further stated: "Basically, it has to be remembered, unemployment in an underdeveloped economy is only another aspect of the problem of development. The same factors which limit the scale of effort a community can make by way of increasing the rate of development limit also the advance in the direction of employment." Thus the Plan to a large extent relied on the expansion of employment opportunities to emerge as a fall-out from the development process after allowing for possible improvements in productivity.

While the Second Five Year Plan envisaged a substantial injection of purchasing power into the economy, the balance between the supply and demand for consumer goods was taken care of through postulating higher levels of utilization of the existing skills and equipment. In addition, it was assumed that technical improvements in the village and small scale industries sector would take place, partly through organizing them on a co-operative basis.

The objective of reduction in inequalities of incomes and wealth was sought to be achieved through fiscal devices and various institutional

changes. This was, however, qualified by the observation that in the process no damage should occur to the productive system, thus endangering the task of development itself or harm the processes of democratic change. The main thrust in this respect was in the direction of progressive taxation, expansion of social services and institutional changes in the sphere of land ownership and management, regulation of the private corporate sector, including the managing agency system, and extension of co-operative enterprise. In regard to regional disparities, the Plan claimed that these were kept in mind while formulating the programmes of development; but this was not quite explicit in the scheme of resource allocation or in the various programmes of development. In regard to industrial location, it was stated that while location of some industries was oriented towards raw material in view of the transport costs involved there was a certain amount of flexibility in respect of quite a few major industries even after allowing for the relevent economic considerations. If certain areas did not seem to qualify for a industry, it was often a reflection of the lack of an adequate infrastructure. Spatial planning for industries was consequently linked up with wider creation of infrastructural facilities.

It was realized that the magnitude and the pattern of investment in the Second Plan would involve a heavy strain on foreign exchange resources in view of the accent on accelerated industrialization. However, the foreign exchange budget presented in the Plan did not go into an explicit discussion of all the implications.

While the model underlying the First Five Year Plan was a simple variant of the one-sector growth model currently fashionable in the literature on economic development, the Second Five Year Plan was clearly based on the two-sector model of Prof. Mahalanobis. This model assumed that by increasing the ratio of current investment going into capital goods sectors it is possible to achieve a higher rate of saving and hence a higher rate of growth. The model also assumed a closed economy in the sense that it did not see the possibility of foreign trade as a source of investible funds supplementing domestic resources.

In the course of the Third Five Year Plan, there was considerable thought given to the need for ensuring a basic minimum level of consumption to the poorest sections of the society. The Plan did not adopt this as an objective to be achieved over a specified period of time. But it did get down from the general objectives of the first two Plans to more specific problems of certain sections of people and regions of the country. In an under-developed economy failure to provide "full employment" can be traced to certain fundamental deficiencies in the economic structure. Until the industrial base has been greatly strengthened, and education and other social services developed, the economy is unable to achieve a rate of growth sufficient to provide work at an adequate level of remuneration to the labour force. Poverty is most acute in areas which have

heavy pressure of population or in which, on account of scanty development of local resources, low levels of productivity persist and there is lack of continuous work. In such areas it is essential to provide for special schemes to meet the minimum needs of the people there. It was for this reason that in addition to the programmes of development for large and small industries, for agriculture and for economic and social services, the Plan provided for a large-scale programme of rural work.

Social services can be helpful in bringing about a measure of redistribution of incomes through ensuring a wider provision of certain basic necessities. This was the rationale behind the Third Plan approach to the problems of the backward areas and the weaker sections. Extension of free and universal education at the primary level, grants of scholarships and other forms of aids, and improvement in conditions of health, sanitation, water supply and housing, came to occupy a central position. Thus, programmes for the welfare of scheduled castes and tribes and other backward classes, for the provision of minimum amenities in rural areas, for local development at the village level and for the housing of industrial workers were considered as not merely extensions of social services but as vital ingredients in the scheme of economic development.

The apparent lack of emphasis on raising agricultural output in the Second Plan and the high priority accorded to it in the Third Plan must be understood in the immediate context of the two Plans. The Second Plan started with a relatively comfortable position in respect of supplies of agricultural commodities. However, two bad harvests and the shift in the pattern of investment in favour of heavy industry as well as the scheme of financing involving a significant level of deficit financing, generated considerable imbalances in the economy in the course of the Second Plan period. The Third Plan, therefore, aimed at a significant increase in agricultural output, leading to self-sufficiency in foodgrains. Significantly, the Plan laid emphasis on improvement in productivity through the Intensive Agricultural Programmes and through greater attention to applied research. This proved to be the beginning of the later Green Revolution.

The Plan recognised that inequalities arose mainly from the long established features of a traditional society, such as feudal rights and tenures or privileges and handicaps associated with the social structure. The programme of land reforms with its stress on the abolition of intermediary rights, security and rent reduction for tenants, and enforcement of ceilings on agricultural holdings was calculated to release the productive forces of the rural economy. As for income inequalities, the thinking was that though there was scope to limit the higher incomes, the disparities could be effectively reduced mainly by providing minimum incomes to the people. Ensuring minimum incomes was, however, only a part of the programme of meeting the minimum needs of the people. It was impor-

tant that the prices of essential commodities were stabilized and social services, especially, education, health and housing were brought within easy reach.

The Third Plan was much more explicit on the goal of self-reliance than the Second Plan. To quote the Plan : "Development effort in India over the Third and the Fourth Plan has to concentrate on expansion of capital goods and machine building industries—together with corresponding development of mining, power and transport—on a scale that it would enable the country to build up in this period sufficient capacity to produce domestically the bulk of the capital goods and machinery that it will require in subsequent periods for supporting high levels of investment. This is a priority that follows as much from the objective of maximising the rate of growth of the economy as from the need to attain a viable external accounts position within a forseeable future." In other words, the objective of the Plan was to reduce substantially the dependence on assistance from abroad after a period of 10 years or so. After this period of 10 or 12 years it was expected that normal inflows of foreign capital would continue but reliance on special forms of external assistance had to be reduced progressively and eliminated. Thus, the Third Plan represented a crucial stage in the process of attaining self-reliance.

As compared to the Second Plan, the Third Plan showed much greater awareness regarding the possibility of foreign trade becoming a bottleneck to increasing the rate of investment. As a result, the investment decisions in the Third Plan were taken with an explicit attention to the role of foreign aid in breaking this bottleneck and the possible desirability of 'using aid to end aid' and reach self-sustained growth at some foreseeable future date. The Third Plan investments which continued the shift to heavy industrial sector were taken against the notion that foreign aid should enable the economy, by permitting these investments, to cross over the hump from the low growth rate equilibrium to a high growth rate equilibrium.

The conflict with Pakistan in 1965, subsequent suspension of foreign aid and devaluation of the rupee, and two successive droughts in 1965-66 and 1966-67 not only obscured the prospects for planned development, but called for a drastic review of Plan priorities. In the plans of development for the years 1966-69, as well as in the Fourth Five Year Plan, self-reliance in the sense of doing away with foreign aid in general and food aid in particular assumed particular urgency. There was also a dramatic change in the political climate of the country when the Fourth Plan was being launched. Inevitably the Plan reflected this new mood of the nation.

This is also evident from the fact that the Fourth Plan was quite specific in regard to the progress to be made in the attainment of self-reliance.

It set the target of doing away with concessional imports of foodgrains under P.L. 480 by 1971. It further aimed at the reduction of foreign aid net of amortization and interest payments to about half by the end of the Fourth Plan compared to the level prevailing on the eve of the Plan.

It was observed in the Fourth Plan that the most notable lesson to be learnt from planning in the past was that the current tempo of economic activity was insufficient to provide productive employment to all, to extend the base of social services and bring about significant improvement in living standards of the people. It also showed an awareness of the dilemma which arose in the given phase of our development. It was possible to increase employment and income opportunities for people employed in traditional industries by restricting the expansion of the modern sectors. But in the long run, increase in productivity and income of traditional industries required large capital investments for building overheads and industries supplying basic raw materials and capital goods.

The Fourth Plan observed that in the light of experience it could be stated that the basic strategy of Indian planning as defined at the beginning of the Second Plan was sound but certain new problems had cropped up in the course of further development. These indicated the need for firmer policy direction and the use of a number of supplementary measures and instruments to carry out the necessary adjustments. The most important lesson was the need to adopt measures which would maintain relatively stable conditions while development proceeded. This was particularly true in regard to agricultural production and more so in the case of supplies of food. This also related to the need for price stability.

The high priority given to agricultural production in the Fourth Plan may be understood. as observed earlier, in the context of the development which preceded the formulation of the Fourth Plan. These developments indicated the need for a shift in investment allocation away from the capital goods sector to the consumer goods sector (primarily agriculture). Two successive droughts during 1965-66 and 1966-67 exposed the inadequate growth of agricultural production in relation to the growth of population and income, and the consequent reliance of the country on P.L. 480 imports. Moreover, there was a decline in investments in the capital goods sector as a result of the fall in the availability of project aid for new projects and the slow completion of the old ones. Public investments had suffered also on account of these two successive droughts.

In keeping with the approach of giving particular attention to specific problems, the Plan provided for schemes for the correction of regional imbalances. The general approach to this problem was in terms of providing the necessary infrastructure facilities in the backward areas and certain fiscal incentives for attracting industries to these areas. The Third Plan had mentioned the need for ensuring a national minimum within the foreseeable future. The Fourth Plan further stressed this objective and

indicated that as a result of development in the Fourth Plan and the Fifth Plan it should be possible to guarantee a reasonable level of average per capita income by the end of this decade The consumption standards of the poor would, however, remain unduly low and it was for tackling this problem that the Plan suggested a number of special schemes for small farmers, landless labourers, and people in backward areas.

The broad objectives of the Plan could thus be defined as rapid economic development accompanied by continuous progress towards equality and social justice. It was to bring a balance between growth and justice that the Fourth Plan suggested a number of special measures and programmes in those areas and for those sections which were comparatively neglected in the past. The Plan proposed detailed action through regional and local planning to help the very large numbers of the smaller and weaker producers and increase minimum employment and future employment potential.

II. Review of Performance

Progress and performance of economic planning during the last two decades and more can be assessed in the light of the objectives set out in the preceding section and the various targets, qualitative and quantitative, set by Indian planners. On this basis, the most obvious conclusion is that Indian planning is both a success and a failure. Targets and achievements diverged in varying degrees. This was true both of the overall rates of growth as well as of the sectors and individual industries and commodities.

The First Plan envisaged that the national income, at constant prices, would increase by 11 per cent during the Plan period as a result of the increase in production provided for in the Plan. The planners thought that, out of the annual rate of increase of about 2 per cent in national income that was projected, it was necessary to plough back into investment about one fifth of it every year to achieve the required rate of capital formation. The Plan provided for an increase of abont 17 per cent in the production of foodgrains, 42 per cent in cotton and 63 per cent in jute. In the case of industry no rate of growth was explicitly mentioned; but some significant developments were expected to take place during the Plan period. The development programme in the public sector provided for a new iron and steel project and a heavy electrical equipment plant.

The pattern of development expenditure envisaged in the Plan broadly underlined the priority given to agriculture. Möre than a quarter of the public sector outlay was earmarked for agriculture, community development and irrigation. Further, there was another 13 per cent provided for multi-purpose irrigation and power projects. The share of industry was a bare 8 per cent. About one-sixth of the outlay was meant for social services. As for the priorities in the field of industries, about 26

per cent of the total investment in the public and the private sector was expected to go into the metallurgical industries, 20 per cent into petroleum refining, 16 per cent into engineering industries and 8 per cent into the manufacture of heavy chemicals, fertilizers and pharmaceuticals. Thus, relatively small investments were envisaged in other industries, mainly consumer goods. About 80 per cent of the private sector investment envisaged in industry was in respect of capital goods and producer goods. In the field of health, the priorities centred round preventive health care by way of provision of water supply and sanitation and control of epidemics like malaria. And in the field of education the highest priority was accorded to the Constitutional directive of universal primary education.

The actual performance of the Plan proved to be highly encouraging in certain fields while not so in certain others, such as social services. National income increased by about 18 per cent and per capita income by 11 per cent; foodgrains production went up by 20 per cent and the production of cotton and of jute went up by 45 per cent and 64 per cent respectively. The index of industrial production registered an improvement of 22 per cent. However, the work on the construction of the public sector iron and steel plant and the heavy electrical equipment plant could not be started in the Plan period. This was perhaps a serious lapse, considering the growing requirements of the economy for steel and electrical machinery. The rate of investment as a proportion of national income rose significantly from 4.9 per cent to 7.3 per cent. This was a major breakthrough in an economy which was stagnant for decades before.

In spite of these encouraging developments, the overall problem of poverty remained unaltered at the end of the Plan. The investment undertaken in these five years was not on a scale sufficient to absorb the estimated new entrants to the labour market which added to the backlog of unemployment and under-employment.

The principal task as defined by the planners for the Second Five Year Plan period was to secure an increase of national income by 25 per cent, to enlarge employment opportunities at a rate sufficient to absorb the increase in labour force and to take a major stride in the direction of industrialization. While the Second Five Year Plan was a continuation of the development effort initiated by the First Plan, there was a major shift in priorities with a larger accent on industrialization, especially on the development of heavy industries and the necessary infrastructure like transport and power. It was expected that by the end of the Plan period investment as a per cent of national income would go up from 7.3 per cent to 10.7 per cent and domestic savings from 7.0 to 9.7 per cent. The crucial role that the public sector was expected to play was also clear in that the ratio of public to private investment in the Second Plan was expected to

be 61:39 as against the parity postulated in the First Plan.

Over the Second Plan period foodgrains output was estimated to grow by 15 per cent and the overall agricultural production by 18 per cent. These ratios were to be compared with 20 per cent and 15 per cent achieved in the preceding five years. The Second Plan, however, placed more emphasis on diversification of production in keeping with the changing requirements. With a special priority given to industrial development, it was expected that the net output of factory establishments would increase by 64 per cent in the Plan period. The emphasis on capital goods industries could be seen from the fact that the net output of these industries was expected to increase by 150 per cent. However, it must be remembered that their base level of production was particularly low.

The change in priorities was entirely reflected in the pattern of outlays and investment envisaged in the Plan. Of the public sector outlay about 12 per cent was provided for agriculture and community development as against over 15 per cent spent in the preceding five years. On the other hand, the provision for industry and mining was as much as 18.5 per cent as against 7.6 per cent in the First Plan. It must be appreciated that the Second Plan ratios related to a total public outlay which was more than double the outlay in the First Plan. In absolute terms the step-up in the outlay on industries and mining was very large—nearly 400 per cent. It may also be observed that the actual outlay under this head in the first Plan was less than 50 per cent of the allocation. The Plan provided for an increase of over 190 per cent in the output of iron ore, over 230 per cent in finished steel and aluminium, 300 per cent in machine tools (graded) and substantial increases in various types of machinery, heavy chemicals and fertilizers.

The Plan ran into unexpected balance of payment difficulties from the very start and had to be reappraised in 1958. Stringent restrictions had to be imposed on less essential imports. As a result, many of the targets of the Plan could not be achieved. There were serious slippages in the construction schedules of a number of major industrial projects. The increase in national income achieved during the Plan proved to be only 20 per cent against a target of 25 per cent. There were similar shortfalls in the crucial sectors of agriculture and industry. The index number of industrial production recorded a cumulative rate of expansion of about 7 per cent. This was significantly lower than what was envisaged, *viz.*, 11 per cent; but still quite high in comparison with the achievements at any time in the past. There were large shortfalls in some of the individual industries. Unfortunately, they occurred in areas which were of crucial importance for future growth. The actual production of finished steel was barely half of the Plan target. The production of nitrogenous fertilizers was only about 35 per cent of the target. There were similar shortfalls in respect of various categories of industrial machinery

and industrial products like heavy chemicals, cement, and newsprint. Another important deficiency in the implementation of the Plan was in regard to the escalation of cost estimates of many important projects.

While the rate of capital formation realized in the terminal year of the Plan at 11.5 per cent of national income was higher than the anticipated rate, *viz.*, 10.7 per cent, the targeted rate of domestic savings was not achieved. It turned out to be only 8.5 per cent of national income against the target of 9.7 per cent. This implied a substantial draft on external assistance.

Considering the first ten years of planning, it can be seen that, while there were many ups and downs in the economy, the overall progress was quite substantial. Agricultural production expanded by about 41 per cent and output of foodgrains by 46 per cent. The net output of organized manufacturing industries nearly doubled. There was a significant accretion of strength to the public sector in the field of industry. National income increased by about 42 per cent and per capita income by 16 per cent. The production of steel ingots went up by 150 per cent. There was a major break-through in the field of oil and petroleum refining. The total investment in the economy exceeded 10,000 crores. The total public outlay on agriculture, community development, and irrigation amounted to Rs. 1550 crores or close to 25 per cent of the total public outlay. Net area irrigated went up from 15.5 million acres in 1950-51 to 70 million acres in 1960-61. There was all round development in the field of education. The number of students attending schools increased substantially, though the target of universal primary education was still far off. There was also considerable success in the provision of health services. Considerable success was achieved in regard to the control of communicable diseases. The employment situation apparently worsened as even the additions to labour force could not be provided jobs out-side agriculture. Some limited effort was made in the direction of development of backward areas through the location of large Central projects. The location for the three new steel plants, *viz.* Bhilai, Rourkela and Durgapur, the Heavy Machinery Plant at Ranchi, the Heavy Electricals Project at Bhopal and the Neyveli lignite complex were examples of this approach.

The Third Five Year Plan aimed at an increase of 5 per cent per annum in the national income. For achieving this rate of growth the Plan estimated that the rate of investment would have to go up from 11.5 per cent to 14 per cent at the end of the Plan period. This called for raising the rate of domestic savings from 8.5 per cent to 11.5 per cent. The per capita income was in the meanwhile expected to increase from 330 in 1960-61 to Rs. 385 at the end of the Plan period *i.e.* by about 17 per cent. One of the major objectives of the Plan was to achieve self-sufficiency in foodgrains.

The sectoral targets set by the Plan were indicative of relative empha-

sis on different objectives of the Plan. The high priority given to agriculture was clear from the fact the agricultural production was expected to go up by 30 per cent and foodgrains production by 32 per cent. Industrial production was expected to go up by 70 per cent or at the rate of 11 per cent per annum. Significant increases were envisaged in the output of steel, aluminium, machine tools, etc. The most significant development during the Plan period, as far as the industrial sector was concerned, was the rapid growth of machine-building and engineering industries. It was estimated that the development programmes in the Plan would create additional employment opportunities to the extent of about 14 million as against the increase in labour force of 17 million. The balance was proposed to be taken care of through large scale rural works programme, village and small industries, etc.

The pattern of investment adopted by the Plan reflected the set of priorities discussed above. The high priority given to agriculture was to be seen in the fact that 20 per cent of the total investment was earmarked for agriculture, community development and major and medium irrigation as against 18 per cent spent in the Second Plan. Considering the substantial step up in the investment proposed in the Third Plan as compared with Second, the absolute increase in the provision becomes evident. The share of organized industries and minerals in the Third Plan at 25 per cent of the total investment was only marginally higher than that in the Second Plan at 23 per cent but in the absolute terms the provision was higher by over Rs. 1,000 crores.

The actual progress achieved during 1961-66 fell much below the targets. In the last year of the Plan there was actually a fall in the national income as a result of serious drought and the conflict with Pakistan. Except for 1964-65, agricultural production did not show any increase and large imports of foodgrains had to be continued. Food imports amounted to 25 million tonnes during the five years of the Plan. Cotton and jute imports amounted to 3.9 and 1.5 million bales respectively. The slow rate of growth in agricultural production depressed the rate of growth of the entire economy. The production of organized industry increased by 8 or 10 per cent during the first 4 years ; but slowed down to 5.3 per cent in the last year. Over the Plan period as a whole the annual rate of growth turned out to be 8.2 per cent compared to the target of 11 per cent.

These shortfalls in domestic production occurred at the same time as total spending in the economy was rising both in the public and the private sector. As a result, there was a steep increase in prices especially in prices of agricultural commodities. The rate of domestic savings rose to 10.5 per cent of national income by the end of the Plan as against the ratio of 11.5 per cent anticipated in the beginning. The rate of capital formation rose from 11.5 per cent of national income to about 14 per

cent. The effort at resource mobilization was, however, quite impressive. The ratio of tax receipts to national income which had increased from 6.6 per cent in 1950-51 to 9.6 per cent in 1960-61 rose further to 14 per cent in 1965-66. However, non-developmental expenditure increased much faster eating away resources so mobilized. In addition, there was serious pressure on exchange reserves and greater resort to external credits for financing capital formation.

Thus the planning process suffered a serious setback by the events of the early sixties. However, certain encouraging long term trends were perceptible in the economy. For example, the rate of growth in the First Five Year Plan period was 3.4 per cent, in the Second Five Year Plan period 4 per cent and in the Third Five Year Plan period, 4.2 per cent (excluding 1965-66 which was an abnormal year). These statistics belied the thesis of stagnation and lack of growth of the Indian economy. This growth must be seen in historical perspective. It must be remembered that for decades prior to the adoption of planning the rate of growth was barely 1 per cent per annum. Even in agriculture, where the progress had been unsteady, the compound rate of growth achieved between 1950-51 and 1964-65 was 3 per cent as against an average rate of less than ½ per cent per annum in the preceding decades. Thus the Five Year Plans had certainly broken the stagnation of the economy even though the rates of growth were below the targeted levels and would appear modest and even unsatisfactory in the light of the actual requirements of the people It is also to be remembered that the population of the country had been increasing at the rate of, over two per cent per year neutralizing a large part of the recorded growth. If national income registered an increase of 69 per cent during this period, the increase in per capita income was only 28 per cent.

The difficulties created by the drought of 1965-66, the conflict with Pakistan, devaluation of the rupee and suspension of foreign aid were further multiplied by another drought and the industrial recession that followed. While some of the factors responsible for these events were beyond the control of the nation, there were a number of lapses which could have been avoided. Despite large outlays there were serious shortfalls in achieving the Plan targets. Delays in construction, escalation of costs and the failure to utilize capacities fully further contributed to our difficulties. The three Annual Plans (1966-69) were more in the nature of a holding operation. The record harvest of 1967-68 and the signs of industrial recovery evident in 1968-69 prepared the ground for launching the Fourth Five Year Plan.

The launching of the Fourth Plan was delayed by three years on account of the setback to the economy during the period 1965-66 to 1968-69. The Plan became operative only when the economy was restored to satisfactory health comparable to that which it enjoyed towards

the end of the Third Plan. There was recovery in agricultural production starting from 1967-68 and in 1969-70, there was a record production of 100 million tonnes. The industrial recession of 1966 and 1967 was also overcome by the beginning of 1968 and there was an increase of over 6 per cent in industrial production in 1968-69. The price situation also had achieved a measure of stability. During 1966-67, which was a drought year, wholesale prices increased by 16 per cent. They rose further by 11 per cent next year. However, they were relatively stable during 1968-69 on account of the substantial increase in foodgrains production. Thus the conditions augured well for a fresh phase of stable growth.

The economy was expected to achieve an overall annual increase of 5.5 per cent in total production during the Fourth Plan. Consistent with this overall rate of growth, agricultural production was expected to rise at an annual average rate of 5 per cent while industrial production at about 9 per cent. It was estimated that aggregate savings would rise from 8 per cent of the national income in 1968-69 to 13.2 per cent in 1973-74. A significant increase in public savings was expected. From 1 4 per cent of the national income in 1968-69 they were estimated to rise to 4.5 per cent by the end of Plan period. A total outlay of Rs. 24,882 crores was envisaged for the Fourth Plan. Of this Rs. 15,902 crores were in respect of the public sector plan and Rs. 8,980 crores for the private sector. Public sector outlay consisted of Rs. 13,655 crores of investment and Rs. 2,247 crores of current development outlay. Thus the total investment in the economy during the five years of the Plan was estimated at Rs. 22,635 crores. The scheme of financing was envisaged to be non-inflationary since the Plan only provided for Rs. 850 crores by way of deficit financing.

The Plan started off on an optimistic note. Against the projected overall rate of growth 5.5 per cent per annum, the economy experienced a rate of growth of 5.2 per cent in 1969-70. Soon, however, the deceleration set in. The growth rate fell to 4.2 per cent in 1970-71 and plummetted to 1.7 per cent in 1971-72 and 0.6 per cent in 1972-73. The year 1970-71, however, recorded the highest ever production of foodgrains of 108 million tonnes but the rate of growth was depressed because of the poor showing in mining and manufacturing and transport sectors. In 1971-72, on the other hand, the rate of growth of industrial production picked up but was offset to some extent by a sharp setback and overall decline in agricultural output. This trend was further reinforced in 1972-73 while the industry showed a further modest improvement.

Agriculture had a very bad year on account of widespread drought. It is estimated that the rate of growth recorded during 1973-74 was around 4 per cent which was mainly accounted for a revival of agricultural production. The improvement in agricultural production in the terminal year of the Plan must, however, be viewed in the context of two bad years.

In fact, the level of output in 1973-74 did not even reach the level attained in 1970-71.

In respect of savings and investments also, the tempo does not seem to have been sustained after the initial recovery registered during the early years. Both savings and investment in the economy seem to have reached their peak levels in 1965-66. After that the savings ratio tended to decline in 1969-70 when it picked up again and is estimated to have reached the level of 11 per cent in 1971-72. Probably there was some further increase in the ratio in 1972-73. The ratio of net investment to net domestic product at market prices reached 14.7 per cent in 1965-66. Thereafter, it declined to 10.8 per cent in first year of the Plan. The fall in the investment ratio during this period was steeper than the fall in the savings ratio because of the simultaneous decline in net inflow of foreign resources. There was, however, an increase in the investment ratio after 1969-70 and it reached the level of 12.2 per cent in 1970-71. It is estimated to have remained stable at this level in 1972-73. It is unlikely that it would have improved in 1973-74.

It can be observed from the annexed Table that there were serious shortfalls in the Fourth Plan in regard to the achievement of the various targets. In spite of the improvement in agricultural production in 1973-74 the output levels in most cases were not significantly different from the corresponding levels in 1970-71. This constitutes a cause for serious concern. It has been observed that while the growth of productivity in the case of wheat has slowed down, there has been no acceleration in the productivity of other foodgrains. The new high yielding varieties of seeds have not so far made any significant impact on the production of rice and coarse grains. There has also been no breakthrough in the production of oil seeds and pulses.

In the industrial sector, performance in certain critical areas such as steel, power and fertilizers was particularly unsatisfactory. Apart from normal factors like inadequate availability of raw materials, transport bottle-necks, labour unrest and low level of industrial investment and management problems which have restrained industrial activity in the recent past, there has been widespread shortage of power during 1973-74. Inadequate maintenance and insufficient attention to operational efficiency in generation and transmission of power have been the major causes of fall in power production.

These crucial shortfalls combined with large non-developmental expenditure which the Government had to incur on account of Bangla Desh and famine relief exerted continuous strain on prices. While prices rose on an average by 7.8 per cent in 1972 the wholesale price index went up by as much as 19.2 per cent in 1973. The rise in prices during 1973 was led by the prices of food articles and industrial raw materials, but in the middle of 1973 prices of manufactured goods emerged as a more im-

portant factor in price inflation. Prices of both intermediate products and finished products increased substantially during the period. The prices of intermediate products increased partly because of a steep increase in international prices of non-ferrous metals as well as due to a substantial increase in the prices of iron and steel. The energy crisis leading to sharp increase in imported oil prices added a fresh and substantial dimension to the price problem.

On the balance of payments front the performance of the Plan presented once again a mixed picture. A bright spot in the picture was provided by buoyancy in our exports witnessed during the second half of the Plan period. Exports increased by about 22 per cent in 1972-73 and by about 24 per cent in 1973-74 as against the increase of only 4.8 per cent in 1971-72. So far the year 1974-75 points in the same direction. There is no doubt that certain special factors have played their part in what would appear to be a piece of very impressive performance on the export front. It cannot, therefore, be taken for granted that a break-through has been achieved on the export front. However, as a result of current world inflation and consequent increase in wage levels in developed countries, our competitive strength in a number of manufactured commodities has increased.

The imports fell by 1.5 per cent in 1972-73, but there was a spectacular rise of over 45.0 per cent in 1973-74 mainly because of the very sharp rise in prices of such items as crude oil, non-ferrous metals and foodgrains. As a result, the balance of payments position is under considerable pressure.

Recent developments in the international economy have to be viewed alongside with a sharp increase in the domestic price level. There is no doubt that the economy is at present under severe strain. The improvement in agricultural production has followed two successive lean years. The rising trend in our exports is certainly an encouraging factor in the situation but by itself may not be adequate to cope up with the balance of payments problem. We need a sharp increase in production to tide over the present difficulty. An encouraging factor is the improvement in the working of some of the major public sector undertakings. However, there is still considerable unutilized capacity in some major public sector undertakings such as steel and fertilizers. These represent important potentialities that need to be tapped effectively.

As a result of the uncertainly created by the unfavourable developments mentioned above, finalization of the Fifth Plan has so far been held up. Draft Plan has been formally inaugurated and is being implemented through Annual Plans. Decision relating to the finalization of the Fifth Plan will have to be taken fairly soon. There is little justification for any talk about a plan holiday. Those who argue in favour of withholding the Fifth Plan till such time as normal conditions are restored may be

taking an unduly short-sighted view of the planning process, while there is no doubt that no effective planning is possible unless a certain measure of economic stabilization has been achieved.

A balanced view will need to be taken which will combine the short term imperatives of the situation with the requirements of medium and long term growth as worked out in the Draft Plan.

III. An Assessment

In the light of the review of performance of development Plans so far, an overall balance sheet of successes and failures may now be attempted. On the success side one can point out that India has recorded substantial increases in the production of foodgrains. The rate of growth in the output of foodgrains in the last 20 years has far exceeded the compound rate experienced in the preceding half century. Similarly an enormous degree of diversification of the industrial base has been achieved during these years. Coupled with this there has been considerable expansion of infrastructure in terms of transport, general education as well as in technical education. In spite of all these achievements, it has to be admitted that improvement in the living standards of the general population leaves a great deal to be desired. This is particularly true with respect to production of essential commodities that sustain life for the vast masses of the people as well as their ability to appropriate to themselves a significant share of the incremental output.

Many of the failures of Indian planning are ascribed by some to the wrong strategy and priorities adopted by the planners. It may, however, be pointed out that the basic strategy of planning in this country has stood the test of time. If an impression still persists that these failures have been due to wrong objectives or strategy, it is mainly because of misunderstanding of certain essential problems inherent in the business of Plan formulation and implementation in a developing economy which has accepted the political framework of democratic planning.

It is, for instance, argued by some that Indian planning was concerned more with growth than with the redistributive aspect with the result that the latter has suffered grievously in the process. It has been made abundantly clear in the foregoing discussion that the Five-Year Plans were never designed to achieve the maximum rate of growth of national income nor were they fashioned in such a way that one could expect a radical transformation of the society in terms of property relationship within a specified time range. Indian planning has always had a variety of objectives before it, which included things such as a rapid rise in the level of national income, deconcentration of economic power, balanced regional development and wider diffusion of social services, such as education and health.

It will be, therefore, appropriate to review the progress of planning in India with reference to these various objectives. While any proposition involving the rate of growth over a long period of time is beset with many difficulties, quite apart from the fact that no single rate of growth in itself can measure the production performance of an economy, the Indian Planning has been only a modest success in terms of the recorded rate of growth. The rate of growth over the planning period as a whole has been below 4 per cent. Judged by the fact that population has been growing at a rate somewhat above 2 per cent it is quite clear that per capita income has increased at very modest rate. It is only when one takes into account significant increases in the industrial potential created by the large scale investment in strategic sectors that one can say that a basis has been laid for sustained growth in the future. Similarly in agriculture the rate of growth has been subject to considerable vicissitudes and the compound rate of growth on a long term basis has not exceeded 3 per cent. Moreover, there have been distinct phases in the growth experience of the country. Income from agriculture and allied activities increased at an annual rate of 2.8 per cent where as industry including construction, electricity, etc., increased at a rate of 6.5 per cent over the period 1950-71. Within the category of industry, large scale manufacturing increased at the rate of 7.4 per cent whereas electricity grew at the rate of 12.6 per cent. Gross production levels for the industrial sector naturally increased at faster rates. From 1965-66 onwards the growth process has been subject to considerable fluctuations in terms of the rate of growth and, in the case of agriculture, in terms of absolute levels as a whole. These fluctuations can be seen for a few major sectors from the following Table :

TABLE I

Income by Industrial Origin

(Rs. Crores at 1960-61 prices)

	1964-65	*1965-66*	*1966-67*	*1967-68*	*1968-69*	*1969-70*	*1970-71*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Agriculture	7747	6695	6675	7791	7803	8195	8633
2. Mining and manufacturing	3010	3058	3136	3210	3342	3514	3656
3. Electricity, gas and water supply	146	161	175	195	221	242	261
4. Construction	777	744	771	846	820	875	927

It is interesting to analyse the trends in sectoral productions, as revealed in the above Table. First, change in agricultural production in a downward direction have influenced activities in other sectors to a great

extent. Secondly, revival in agriculture has not had as much of a trigger effect on the rest of the economy as one would have predicted. Thirdly, economic policy has not been able to offset the outside disturbances which have been fairly pronounced over this period. And lastly the average rate of growth of agricultural output as a whole has not been significantly different during the last 7 or 8 years as compared with the earlier decade and a half.

The story of savings and investment is no different. There has been a retrogression from 1964-65 onwards in the rate of savings and investment. Leaving out the year 1965-66, which was somewhat unusual, net domestic saving as a percentage of net domestic product was 9.8 per cent in 1964-65 whereas in 1970-71 it was only 8.6 per cent. It is clear from these figures that the revival of national income in recent years has been accompanied by a falling saving-income ratio.

What are the reasons for this complex situation ? Analysing the economic factors, the major factors in the situation appear to be the shift in the distribution of income from urban to rural areas, growth in public consumption and failure of the fiscal system to mop up the extra incomes generated. There are critics who are inclined to put the blame on the strategy for industrialization that was adopted at the time of the Second Plan. There is no clear and comprehensive study by the critics which show that a different strategy for industrialization would have served our needs better. It is not clear that the planners had chosen an inappropriate product for the economy. The argument that there has been a relative neglect of agriculture is not borne out by statistical evidence that we have at out disposal.

It has been observed earlier that agriculture enjoyed increasingly high priority in the First Three Plans. In recent years the urgency to increase agricultural production has further increased and the importance of this has been recognized by the planners in as much as the farmer is guaranteed of minimum prices, high yielding seeds, adequate fertilizers, and irrigation facilities. A break-through has been achieved in wheat cultivation with the introduction of the high yielding varieties. This has removed the limitations set by the existing crop varieties to the package programme introduced in the early sixties. The new strategy in agriculture is concerned not only with higher yield, but with greater intensity of cropping. Entirely new crop relations have been made possible by the development of short duration varieties of paddy, maize, *jowar* and *bajra*. The new multi-cropping programme was introduced in 1967-68 and has been strengthened from year to year. Agricultural technology as a major input of agriculture production has received special emphasis. During 1951-69 the total public expenditure on agriculture and allied services amounted to Rs. 4930 crores out of a total of Rs. 21,892 crores. In addition, there was sizeable private investment. The significant expansion

in agriculture inputs during the last two decades is evident from the following Table:

TABLE II

Progress in Use of Agricultural Inputs

		1950-51	*1960-61*	*1968-69*	*1973-74*
1. Nitrogenous (N)	'000 tonnes	55	210	1208	1835
2. Phosphatic P_2O_5	,,	neg.	70	382	634
3. Potassic K_2O	,,	nil	26	170	314
4. Plant protection	'000 hectares	n.a.	6400	27800	60594
5. Tractors	'000 nos.	8.6	31.0	91.0	203.0
6. Power tillers	,,	nil	nil	6.0	10.0
7. Pump sets (electric)	,,	18.7	191.9	1088.7	2439.0
8. Pump sets (Diesel)	,,	65.8	230.0	837.0	1510.0
9. Short and medium term loan	Rs. crores	22.9	203	504	750
10. Long-term loan	,,	1.33	12	148	200

As a result, significant improvements in production and productivity have been achieved during the last two decades. The improvements in production and productivity are brought out in the following Table:

TABLE III

All-India Compound Rates of Growth of Agricultural Production, Area under Crops and Agricultural Productivity during 1949-50 to 1968-69

(per cent per annum)

Crop (1)	*Production* (2)	*Area* (3)	*Productivity* (4)
1. Rice	3.02	1.22	1.78
2. Wheat	4.20	2 26	1.90
3. Cereals	3.00	1.17	1.82
4. Pulses	1.16	1.26	(−) 0.10
5. Foodgrains	2.79	1.19	1.65
6. Oilseeds	2.86	2.31	0.53
7. Cotton	3.93	1.91	1.98
8. Jute	2.29	2.03	0.27
9. Fibres	3.49	1.94	1.52
10. Non-foodgrains	3.18	2.19	0.97

It can be seen that aggregate agricultural production rose at an average of 2.92 per cent per annum, foodgrains at 2.79 per cent and non-

foodgrain crops at 3.18 per cent. Over half of the increase in total crop production was derived from higher yields per hectare. The remainder represents the contribution of area growth estimated at about 1.37 per cent per annum. Judging by the relative movement of area and production in the last few years there would appear to be a marked deceleration in area growth. As regards yield rates, there seems to be a significant difference between food and non-food crops. Even among the foodgrains the output of pulses has increased only about less than half as fast as that of cereals. What is more disturbing is the decline in the average output of pulses per hectare.

Critics have also found fault with the policy of import substitution *vis-a-vis* export promotion. The import substitution pattern of development, where the growth of so-called heavy industries has played an important part, has been criticized as being especially expensive. It is argued that if the same amount of investment had been used for developing industries with high potential for exports, the resulting allocation would have proved much more beneficial for the economy. On the abstract plane, such an argument is maintainable if it could be assumed that the basic aim of the Indian planners was maximization of current level of consumption. However, given the fact that Indian planning had a multiplicity of objectives before it, which included among other things, a desire for self-reliance with a need for a structural transformation of the technological base, the purely abstract argument does not clinch the issue.

If the progress towards self-reliance appears tardy and insubstantial, the reason does not seem to be that the basic strategy in this regard was faulty. This must be attributed to three factors : (1) misdirected investments in the private sector; (2) failure of public sector projects to materialize as planned; and (3) changing needs of the economy, particularly in respect of sophisticated equipment and materials, and inadequate progress in catching up with advancing technology. It was expected that the country's capability of meeting its investment requirements through import substitution, internal surpluses and export earnings would be adequately developed to eliminate or substantially reduce the balance of payments deficit. However, today we have on hand substantial unutilized capacity in the heavy investment sector. Failure to adopt proper maintenance practices; disturbed labour relations and lack of co-ordinated development in different sectors have been responsible for this phenomenon. As a result, the economy is facing serious shortages of steel, power, fertilizers, cement and non-ferrous metals which have enlarged the balance of payments gap beyond the unavoidable level. The encouraging spurt in non-traditional exports has received a setback because export availabilities have been reduced by scarcity of key raw materials which were expected to be produced by the core sectors.

With regard to the problems of balanced regional development,

it must be admitted that the Indian planners did not operate on the basis of a well-formulated strategy in this regard. The absence of a strategy has been particularly conspicuous with respect to the location of industrial projects and the highly selective nature of the growth process initiated in agriculture. There is no doubt that the existing disparities with which the era of planning began have been changed in the course of the planning process. Whether this has led to an accentuation of the index of regional inequality compared with the base level, is not, however, clear. Even then, it is necessary to be extremely careful in this respect, from a long range of point of view. It can be seen from the following Table that more recently certain States have grown much faster than the others, a process which does not appear to have been reversed even according to the latest indications.

TABLE IV

Disparities in Per Capita Income in Different States

[Rs. current prices]

	1964-65	*1969-70*
Punjab	575	1002
Maharashtra	526	756
Gujarat	523	740
Haryana	504	902
West Bengal	498	706
Assam	441	586
Andhra Pradesh	438	544
Tamil Nadu	434	591
Karnataka	420	571
Kerala	393	643
Uttar Pradesh	376	497
Madhya Pradesh	373	495
Rajasthan	336	478
Orissa	347	545
Jammu and Kashmir	141	503
Bihar	229	402

It is difficult to assess objectively the performance of the economy with regard to the objectives of reducing concentration of income, wealth and, more generally, economic power. It may, however, be instructive to make a selective survey of trends perceptible in certain vital sectors. In the agrarian sector, the role of non-functional intermediaries like the zamindars has been considerably reduced. In regard to the tenancy legislation, the net gain for the under-privileged sections does not seem to be significant. Much of the tenancy has gone underground. Two types of tenancy changes

have been observed, one from the 'big'. Usually the poor have gained much less than the rich in the process of leasing out land. In the wake of the Green Revolution, insecurity of tenancy seems to have increased resulting in a considerable number of cases of eviction. There has been some increase in capitalist farming, though its nature and scope would appear to be limited. The relatively slow growth of non-agricultural economy has only further led to the pressure on land, increase in gross sown area has not led to any reduction in the numbers seeking jobs on the farms since the benefits of irrigation facilities, especially irrigation water available from private sources, have mostly gone to the richer farmers. The initial beginning in the direction of mechanization of agriculture has further accentuated the problem of pressure on land.

Summing up, one can say that though there have been some significant structural changes resulting in a considerable increase in agricultural production, there does not seem to have been any material change in the distribution of incomes or wealth in rural India. Probably this observation might have to be modified with reference to different periods. For instance, in the initial decade of planning, with the abolition of intermediary tenures and a step-up in public investment in agriculture, there was some improvement in the distribution of income and wealth in favour of the poorer sections. From the middle sixties, however, there has been considerable private investment supported by liberal Government credit to the more well-to-do sections of the rural society. This seems to have resulted in the accentuation of economic inequality.

In regard to the distributional issues connected with the industrial sector, there are several inter-related problems. There has been considerable public discussion about the increasing economic power of the large business houses. Several commissions and committees have looked into this matter in some detail. One factor contributing to this phenomenon of the big becoming bigger, it is stated, is that in the very process of planning there is an accentuation of disparities. It is quite clear that the system of industrial licensing that has been operated has proved neither particularly efficient nor egalitarian. However, in carrying out a complete assessment of this situation it is very important to keep in mind a few related phenomena. First of all, one should remember that the whole structure of institutional finance has altered in the course of the last two decades of planning. This indicates significant possibilities for achieving reduction in concentration of economic power. Secondly, the scope of the public sector has expanded considerably. With better management and an improved framework for decision making in public enterpsises, the public sector can play an important role in the economy which it has not done so far. Thirdly, if the rate of growth of output in the core sectors in the economy can be stepped up, small scale sector can play a very important role in generating additional income and employment to a

larger number of people.

In the field of education we now have a pool of well qualified and technically trained personnel. In recent years certain categories of skilled manpower have had great difficulties in securing jobs. Some others have placed the blame for this on faulty planning in this sector. However, a large part of this criticism would appear to be misplaced. The emergence of unemployment in this area is very closely co-related with the slowing down of the rate of growth of industrial production. Mistakes in demand forecast can be largely explained by a series of decisions taken in sectors which lie outside the educational system. There are, however, some very glaring failures in the field of education. The Constitutional Directive regarding universal elementary education has not been fulfilled, even after 25 years of independence. The rate of growth of literacy has been lower than the rate of growth of population with the result that there is an increasing number of illiterates in the country. The rate of growth of enrolments at higher levels of education has exceeded the rate of growth at lower levels which has affected the structure of the educational climate adversely, given the fact that higher education is meaningful only if sufficient quality is maintained. There is a large degree of wastage and stagnation in the educational system. And, finally, the whole process of educational expansion has been marked by an indiscriminate use of subsidies much of which has accrued to the more affluent sections of the community. The total result of this has been that the contribution of the educational sector towards the equalization of economic and social opportunities has been very modest. It is, however, necessary to recognize one significant change brought about by the educational expansion. The closely-knit largely Anglo-Brahminic elite of the pre-independence era has now been replaced by a somewhat wider elite which includes more affluent sections of our rural society.

However, it is also quite clear that despite this wider coverage of the education system vast masses of our population have so far remained untouched.

Some of the significant achievements and major changes affected by last two decades' planning may now be summed up. While there has been a long shadow between plans and performance, there have been basic changes in our economy and in the social structure which have been brought about by planning. New production relationships have emerged coupled with the emergence of new skills and new focal points of power. There is also no doubt that the Indian economy today has a structural composition which can in principle lead to better performance in the future. In spite of this, if our survey indicates that Indian planning has met with only limited success, it is necessary to discover the reasons for it. There are two possible inferences that can be drawn. One is that Indian planners have been unrealistic in setting the targets and the other

is that Indian planners have not been able to devise a set of instruments which would be adequate to meet these targets. These two explanations are by no means exclusive. In fact, it may be more reasonable to argue that deficiencies of the Indian planning process have arisen from the joint operation of both these factors. It would, however, appear that the deficiencies would appear to be more due to the failure to develop appropriate instruments than to the inherent infeasibility of the targets.

On the side of target setting, Indian planning has suffered from two basic defects. Given the multiplicity of objectives, there has been no clear ranking of these objectives, which has resulted in somewhat contradictory set of policies being attempted at least on occasions during the planning period. As a result, concessions and compromises have been made without any compensatory advantages. Moreover, there has been frequent failure to distinguish between targets and instruments within a given context of decision-making.

As regards the choice of instruments, Indian planning seems to have largely relied on certain financial allocations sector-wise, fortified by a mass of administrative decisions. These are fairly blunt instruments if one would consider the nature of the job that was being attempted. Certain studies dealing with the magnitudes of low-end poverty in the country have helped us to realize how inadequate our instruments have been when it came to having any impact on the conditions of living of the people. Some people have drawn the conclusion from these studies that the investment allocations ratios adopted in the course of the different Plans have been basically misconceived. This does not seem to be the case. What appears to be the position is that for carrying out adequate planning in a mixed economy we have hardly developed mechanisms to influence the production and distribution decisions within the private sector so that they conform to the national priorities. This failure is very serious considering the crucial role the private sector plays in the national economy.

The failure of the planners to devise appropriate instruments may be ascribed to their inability to identify the levers of change in terms of an appropriate set of institutions. Given the nature and magnitude of the job that has been attempted, it is rather remarkable to observe the very cursory analysis that Indian planners and policy makers have carried out in appraising the suitability of alternative institutional arrangements. This would be true whether one talks of education or fiscal policy or the management of public enterprises.

IV. The Prospects

The Fifth Five-Year Plan, 1974-79 : Our analysis in the preceding sections has shown that despite some growth and considerable diversification

in the structure of production, living standards have not risen commensurately. Part of the explanation no doubt lies in the acceleration of population growth. But in part this has been due to the adoption of the aggregative approach in terms of growth rates. The Draft Fifth Plan has tried to evolve a somewhat more disaggregative approach by proposing a simulatenous attack on under-development and inequality. The latter aspect is as important as the first one as the perspective Plan contained in the Fourth Plan document made quite clear. It was estimated at that time that if gross national product during the Fourth Plan grew at a compound rate of 5.5 per cent followed by a compound rate of growth of 6.2 per cent over the period 1974-75 to 1980-81, the per capita consumption of the second poorest decile of the population would rise to Rs. 27 per month (at 1968-69 prices) by the end of the period. Thus even a fairly high rate of growth sustained over a dozen years would not lift this section above what was described by an earlier committee as the "poverty line". It would, therefore, follow that if poverty is to be removed in any significant way, measures promoting equality have to be undertaken and intermeshed with the growth process itself.

On the growth side, emphasis has been laid on a step up in the rate of growth of agricultural production, in power generation, and in production of steel and non-ferrous metals. Mass consumer goods industries have been envisaged to expand with a view to securing a better balance between demand and supply. To promote self-reliance in the energy sector, a very sharp increase in the level of coal production has been envisaged.

On the distribution side, a three-pronged attack has been contemplated involving the generation of incomes, accrual of incomes and the channelization of a mobilized part of additional incomes into savings, more especially into public savings. From the point of view of generation of incomes, it is quite clear that no substantial improvement in the level of living of the poorest 30 per cent of the population is possible unless the strategy for increasing agricultural production is so conceived as to benefit the small farmers and agricultural labourers.

Specific schemes have been worked out in the agriculture plans to bring about the desired increase in the income levels. These include schemes for drought prone areas, schemes for development of animal husbandry and fisheries, schemes for sericulture and schemes for small farmers and marginal farmers which would help in substantially increasing the income levels of 26 million households in rural areas. All these schemes emphasize the fact that without an increase in the production base of small and marginal farmers, it is not possible to increase their income. Accordingly, these schemes are not to be viewed as so many programmes of social welfare but should be viewed as an integrated attempt to increase the volume and the share of output of these categories of population

through planned provision of necessary credit infrastructure and other organizational facilities.

Land reforms can help the cause of income distribution to great extent not merely through improving the share of the cultivators in total produce but also through increasing the total produce itself. For this purpose land reforms should be conceived as integral to programmes embracing measures relating to credit flows, marketing of produce and distribution of essential inputs. Modern agricultural technology can be adopted regardless of the size of the operational holding and, provided credit and other facilities are made available, a small farmer can be enabled to improve his productivity considerably. Improvement of tenurial conditions is another important instrument leading to both higher output and better distribution of the gains of such output. While efforts have been made in this respect in the past, there is sufficient scope for further action.

Larger employment and income to the poorer sections of the population will not be enough to ensure them a minimum standard of consumption. It will, therefore, be necessary to supplement these programmes by providing social consumption, at least upto a minimum standard, in the form of education, health, nutrition, drinking water, housing, communications and electricity. This is how, then, emerges the rationale of the National Programme for Minimum Needs.

While employment programmes and land reforms are likely to generate a more balanced distribution of incomes by different size classes, fiscal policy assigned an important role in checking concentration of incomes at the accrual stage. In addition, public distribution of essential commodities has been visualized to prevent the possibility that real consumption of the poorer sections can fall as a result of failure of production to come up to the requisite level. Special measures have been contemplated which make savings more attractive on the margin than consumption.

Inflow of net aid has steadily declined during recent years. The objective of self-reliance will be carried a step further during the Fifth Plan by reducing further the economy's dependence on foreign aid. This would be in keeping with the objective of dispensing with gross concessional aid altogether.

The maintenance import requirements of the economy have been steadily increasing over the years. The major items in this regard are fertilizer and fertilizer materials, chemicals, non-ferrous metals, special varieties of steel, components and spare parts of machinery. It is estimated that of the estimated imports during the Fifth Plan period about 80 per cent will be on account of maintenance needs of the economy. Import substitution, thus, becomes a crucial factor in the speedy realization of the goal of self-reliance. It, therefore, becomes of supreme importance that the production targets in agriculture and mineral and industrial sectors are achieved according to schedule. Non-essential imports must be cut down

to the minimum.

By developing domestic production, it may be possible to altogether avoid imports in some cases, such as, most categories of mild steel, nitrogenous and phosphatic finsihed fertilizers and many items of plant and equipment and reduce and restrain them in other cases like non-ferrous metals. There would also be cases where the requirements can be met by domestically produced substitutes, as for example, coal and hydro-power may be substituted for imported liquid fuels and aluminium for imported copper. Restructuring of the energy base of the economy has become extremely urgent in view of the energy crisis. All opportunities, for economy, and import substitution must be availed of if the balance of payment problem is to be kept manageable. This would be a major thrust of policy during the coming decade.

Given the size and diversity of our resource endowment, import substitution and export promotion can be regarded as complementary objectives. In fact, certain major areas, such as steel and aluminium are prime examples of the complementary nature of these two objectives. It makes considerable economic sense to argue that India should concentrate its efforts on exporting finished steel rather than iron ore. In fact, in the growth profile of the Fifth Plan as well as in the perspective Plan such a possibility has been visualized.

The import substitution contemplated in the Fifth Plan is selective and not indiscriminate. In the past, the cost of domestic manufacture has sometimes been inordinately high compared to the landed cost of similar items. In such cases, import substitution may lose much of its significance, if the cost level cannot be brought down quickly. In the Fifth Plan, the main thrust for import substitution has to be in the fields in which the country is favourably placed for production at reasonable cost. In the past, in several cases, an industry initially nurtured through the policy of import substitution, has in due course acquired a level of efficiency that enabled it to grow into an export industry. Import substitution policies for the Fifth Plan will have this perspective. This means that cost and quality must be given as much attention as the quantity of production.

It has been found that a lower rate of growth does not involve commensurate relief on the balance of payments account. This is because the impact of a lower rate of growth falls more than proportionately on certain basic industries when the degree of manoeuvreability on the balance of payments front is very limited because of the heavy debt service obligations and the needs for maintenance imports which are crucial for the economy. Import substitution through fuller utilization of existing capacities and creation of necessary capacities therefore assumes great importance.

While import substitution is going to remain an essential ingredient of

our policy, it is quite clear in view of the increased costs of liquid fuels and other essential inputs such as fertilizers, export promotion must be given a very prominent place in the strategy for self-reliance.

What is urgently called for is a comprehensive review of export policies and potential so as to impart the necessary dynamism to our export effort. Industries producing luxury goods constitute sizeable constraints on our foreign exchange and domestic resources. However, the existing capacities in these industries cannot be scrapped without causing unemployment at least during the transition period. Effort, therefore, must be made to utilize them for export purposes as far as possible.

The rate and pattern of growth for the Fifth Plan follows from the objectives and strategy of the Plan. After trying out several variants, the Planning Commission has adopted the one providing for a 5.5 per cent average annual rate of growth. The composition of growth has been worked out on the supply side by postulating a reduction in the inequality of consumption. The extent to which the reduced inequality level will be realized depends not only on our ability to produce the needed quantities on the margin but also, as mentioned earlier, in generating additional incomes in the hands of the poorer sections of the community.

The Plan takes note of some special problems and makes provision to tackle them. The backward and hill areas present in essence a problem in area development and call for an area approach. It will be our effort in the Fifth Plan to formulate integrated development programmes for these areas. The National Programme for Minimum Needs will have to be integrated with the overall programme. Institutional arrangements for integrated development programmes for backward areas as well as their mode of financing are being worked out. Since the primary responsibility for developing the backward areas lies with the States, they are taking steps to strengthen the machinery required for undertaking this responsibility.

The Fifth Plan will seek to intensify the efforts for the development of the backward classes. It will lay emphasis on the role of the "general sector" in providing major development programmes for these classes. Priority will be accorded to these classes in the implementation of the National Programme for Minimum Needs. The Plan will provide for integrated child care services to the most needy families. There will also be programmes to improve the competitive capability of talented students. The working and living conditions of those engaged in unclean occupations would receive priority. Areas with concentration of tribal population will receive special attention.

There is need to attain and maintain a reasonable balance as between wages, prices and incomes. With this in view, the scheme of financing seems to avoid generating excess demand. The provision for deficit financing would be restricted to a level only where money supply would

not exceed the requirements of the economy arising from growth in real terms. As mentioned already, an adequate public procurement and distribution system for assured supplies of essential consumption goods, at least for the poorer sections, at reasonably stable prices is envisaged.

A sensitive area in regard to the problem of stabilization of prices is the one relating to agricultural production, particularly food. It has been our experience in the past that even a marginal surplus or deficit may make all the difference between adequacy and scarcity. The reasons for this are not far to seek. Nearly 60 per cent of total household consumption and 85 per cent of the commodity consumption of households is comprised of agricultural products or manufactures based on agricultural raw materials. Data from the N.S.S. suggest that the overall elasticity of demand for food products is quite high. The prospect of achieving the projected growth in incomes under conditions of stability is almost entirely the function of the prospects of growth of agricultural production and the skillful management of the available surpluses.

While agriculture has enjoyed a high priority in our Plans, the importance and need of continued emphasis on agriculture in the coming years is only too obvious. In the meanwhile, however, the problem of management of food and other agricultural surpluses becomes extremely important. We must build up effective procurement and distribution system for the foodgrains. It will be necessary to give adequate attention to the difficulties of feeding the distribution system even in a lean year.

It will be necessary to ensure that rises in wages, unrelated to improvement in productivity, will not be allowed. It will be necessary to evolve an equitable national wage structure covering the public and private sectors. It will be necessary to enforce proper discipline on those who draw their income from property and enterprises, particularly with a view to checking conspicuous and inessential consumption. The prices-wages-income policy has to be viewed as a consistent whole.

Indian planners have recognized from the beginning that science and technology have a major role to play in the transformation of the economy. Development is a process of utilizing more and more effectively resources of the community in the achievement of the socio-economic objectives. These resources are partly given by nature, but they have to be transformed by the application of new skills and technical know-how. In a sense these skills and know-how are more important than even capital formation proper. A continuous and progressive increase in the conditions of living of the people presupposes not only more effective utilization of known resources and better application of known techniques, but it also calls for increasing search for discovery of new resources and adoption or development of new productive techniques.

Some economists, notably Kuznets, have maintained that the most important single factor contributing to economic development is the

community's readiness to develop and apply modern technology to processes of production. Advances in this field are taking place rapidly and they are of direct significance not only to the organization of production, transport and other economic activities but also to the wider issues relating to economic and social organization. Under-employment is from one point of view a consequence of insufficient technological progress and adaptation. Countries which start late in industrial development have this advantage in that they have to tap, so to say, the technology already developed in the advanced countries, but there is need for keeping abreast of the latest developments and for continuous innovation to adapt the technology to the needs and conditions of developing countries of today.

Investment in scientific research, therefore, becomes an important prerequisite for ensuring speedy development. That is why the successive Five Year Plans made steadily increasing allotments for scientific research and development of technology. Through improvement in agriculture, medical and health facilities, techniques of locating and processing raw materials, providing substitutes and evolving new materials, appliances and techniques for industry, transport, power communications and other essential utilities, investment in research yields a return many times more. This has been abundantly proved by the results of research in high yielding varieties of crops. It will be only through a technological breakthrough in rice production and techniques of dry farming that a real agricultural revolution can be achieved in the Indian economy.

In the context of the urgency to achieve the objectives of self-reliance and social justice, the need for rapid strides in science and technology is only too obvious. Although scientific research has been a part of national planning during the last two decades, the efforts so far have been rather limited. The goals of Research & Development programmes and projects have often not been derived directly from the technological needs of development projects. At the same time, the scope of science planning has not covered the whole of the 'innovation chain'. As a result, successful research results at the laboratory level have often failed to be linked to such elements as pilot plan work, design engineering, plant erection and commissioning and marketing which are essential if a nation is to secure real and substantial benefits from science and technology.

It is for this reason that in the Fifth Plan for the first time a comprehensive science and technology plan covering the entire economy has been prepared as an integral part of the Plan. The National Committee on Science and Technology was set up to undertake the task of formulating the programme content for such a Plan, as also advising Government on the policy framework, organizational and managerial structure and other measures needed for its implementation. The science plan is not a plan merely for education and research but a plan to harness science and

technology for achieving the goals and programmes of the Fifth Plan. The basic objective of the science and technology plan is to support the drive for self-reliance in the core sector of the economy such as, agriculture, energy, mining, metallurgy, heavy engineering and chemicals ; to make further progress in areas such as atomic energy, space and electronics and to contribute to meeting the basic needs of the people such as housing, health and education.

Great stress will be laid on proper and effective implementation of plan programmes and policies. We have to improve the performance of the administrative apparatus, to avoid delays and to cut out waste and to stop leakages. Special attention will have to be given to project formulation. Lack of well formulated projects has been one of the serious handicaps in the fulfilment of the Fourth Plan production targets. There has to be a greater utilization of capacity and urgent steps will have to be taken to correct the persisting imbalances and inter-sectoral distortion in the economy and for better maintenance of plant and equipment. The delays and inefficiency have been found to be due to inadequacies of management and lack of harmony in industrial relations. This is true of both the public and private sectors and their operation calls for marked improvement.

The objectives and strategy for the Fifth Plan call for considerable work towards evolution of a policy-frame for the successful implementation of the development programmes. A detailed policy-frame covering agricultural policy, policy for resource mobilization and for achieving regional balance in development is being worked out.

The Long-Term Perspective : 1974-86. The Fifth Plan has been formulated in the background of a long-term perspective extending to 1985-86. The perspective plan envisages a rate of growth of 5.5 per cent in the Fifth Plan, 6 per cent in the Sixth Plan and 6.2 per cent in the first two years of the Seventh Plan. The sectoral rates of growth have been worked out keeping in view, the priorities of sectoral outputs in final demand and the feasibility of domestic production at economical costs which in turn depend upon resources endowment and the market conditions. As a result of the differential sectoral growth rates, there would be a structural change, even if on a modest scale. The share of mining and manufacturing in the gross domestic product is expected to improve from 15.39 per cent in 1973-74 to 19.98 per cent in 1985-86; of electricity from 1.13 per cent to 1.79 per cent; of construction, from 5.62 per cent to 7.75 per cent; of transport from 4.42 per cent to 4.56 per cent, and of services, from 27.70 per cent to 30.39 per cent. As it should happen in the course of development, the share of agriculture and allied sectors would decline from 45.76 in 1973-74 to 35.73 per cent in 1985-86. This is fully in line with the

experience of the developed countries in comparable stages of the development.

The population growth is one of the most crucial variables influencing the rate of growth in per capita income. On certain assumptions in regard to the success of the family planning programmes which will require substantial organizational efforts in themselves, the total population has been estimated to increase from 547 million in 1971 to 581 million in 1974 and 705 million in 1986. The increase in population in the 12 year perspective period has thus been estimated to go down from 35.57 per thousand during 1971-76 to 29.57 during 1976-81 and further to 24.82 during 1981-86. As a result of the expanding public health programmes and improvement in the standard of living of the people, the death rate is also expected to go down from 15.23 per thousand during 1971-76 to 12.8 during 1976-81 and 11.14 during 1981-86. As a result of the comparatively steep fall in the birth rate, the growth rate of population is, however, expected to decline from 2.03 per cent per annum during the first period to 1.68 during the second and finally to 1.37 per cent in 1981-86.

As a result of the decline in the birth rate, there will be an improvement in the age structure of population. The progressive decline in the share of 0-14 age group from 41.4 per cent of the population in 1971 to 33.3 per cent in 1986 will mean a welcome reduction in the dependency ratio which will have a beneficial impact on the living standards and capacity to save. The age group 5-14 representing the school going children will go down in its share from 25.6 per cent in 1971 to 22.7 per cent in 1986. This is expected to facilitate the achievement of the target of universal, elementary and middle school education. The fall in the rate of growth of population will affect the labour force with a time lag of about 15 years. The higher rate of growth of population during the last 15 years will, therefore, reflect itself in the increased size of labour force during the next 12 years. It is estimated that the participation rate would increase from about 31 per cent in 1971 to 32.6 per cent in 1979, 34.4 per cent in 1984 and the end of the Sixth Plan and 35.2 per cent two years later. The participation rate would, however, still be lower than in the advanced countries. The addition to labour force would thus be 65 million or more than 3½ times the present level of employment in the entire organized sector, both public and private. Considered along with the huge backlog of unemployment and under-employment, providing jobs to the growing labour force is going to present the single most important problems in the years to come.

This makes the problem of removal of poverty particularly difficult as poverty has been the result of unemployment and under-employment on a large scale. As a result of the shortfalls in the growth rates postulated in the Fourth Plan, it has been necessary to lower our sights in the Fifth, Sixth and the Seventh Plan. At the projected rates of growth the object

of removal of poverty can be realized only if there is considerable reduction in the inequalities of consumption. The share of the bottom 30 per cent of the population has been estimated at present at 13.46 per cent of total private consumption. If this share remains unchanged, the average per capita consumption of this section would rise from Rs. 25 per month (at 1972 prices) in 1973-74 to Rs. 29 in 1978-79 to Rs. 35 in 1983-84 and to Rs. 38 in 1985-86. Thus even by the middle of the Seventh Plan per capita consumption of the poorest 30 per cent would be below the minimum desirable level of consumption of Rs. 40.6 per month at 1972-73 prices. Such a state of affairs cannot, of course, be tolerated. The Fifth Plan exercises show that if the private consumption norm in respect of the poorest 30 per cent has to be met by 1978-79, their share in total private consumption will have to be raised from the present 13.46 per cent to 18.85 per cent. If, on the other hand, the objective has to be reached by 1983-84, that is the end of the Sixth Plan, their share will have to go up to 15.64 per cent and, if the deadline is extended to 1985-86, there will have to be only a marginal upward change to 14.44 per cent. This gives an idea of the order of redistributive effort that is required for achievement of the goal of removal of poverty. The growth strategy in our perspective must, therefore, mean not only a higher rate of growth than in the past but also progressive redistribution of incomes and consumption. It will not only be the rate but also the content of growth that will be crucial in this connection as has been already mentioned. The pattern of production must lay emphasis on articles of mass consumption. There will have to be employment creation on a fairly increased scale. It will also be necessary to increase social consumption and investment with a view to maximizing the efficiency and productivity of vast numbers to improve the quality of their lives. The institutional reform and the fiscal policy must be oriented to reduce the inequality along with increased productivity. The backward regions and classes have a higher incidence of poverty. Their development must receive priority.

Keeping the above consideration and the inherent constraints in view the perspective of development for the next 12 years provides for a structure of production consistent with the emerging requirements. The basic objectives of self-reliance and removal of poverty call for restructuring of output in favour of goods and services that go into investment, exports and essential private and public consumption or serve as crucial intermediate inputs for final production. This will be clear from Table V which sets out the selected output projections for the period 1973-74 to 1985-86.

TABLE V.

Selected Output Projections

Item (1)	*Unit* (2)	*1973-74* (3)	*1978-79* (4)	*1983-84* (5)	*1985-86* (6)
1. Foograins	million tonnes	114	140	162	170
2. Coal	mill. tonnes	79	135	203	238
3. Iron ore	mill. tonnes	37	58	75	83
4. Crude petroleum	mill. tonnes	7.7	12	15	15.5
5. Sugar	mill. tonnes	4.3	5.7	7.4	8.2
6. Cotton cloth	mill. metres	7800	10000	12750	14100
7. Petroleum products	mill. tonnes	21.5	34.6	48.0	55.2
8. Nitrogenous fertilizers (N)	'000 tonnes	1162	4000	6300	7000
9. Phosphatic fertilizers (P_2O_5)	'000 tonnes	350	1250	2600	3000
10. Sulphuric acid	'000 tonnes	1400	3200	7800	9500
11. Caustic soda	'000 tonnes	450	785	1250	1500
12. Soda ash	'000 tonnes	500	880	1350	1650
13. Drugs and pharmaceuticals	Rs. crores	300	500	800	950
14. Cement	mill. tonnes	16	25	38	44.7
15. Mild steel (finished)	mill. tonnes	5.44	9.4	17.1	20.5
16. Aluminium	'000 tonnes	190	370	600	740
17. Copper	'000 tonnes	18	45	90	95
18. Agricultural tractots	'000 nos.	40	80	110	140
19. Machine tools	Rs. crores	65	137	230	271
20. Hydro turbines	mill. kw.	0.53	1.4	2.0	2.3
21. Thermal turbines	mill. kw.	1.7	2.2	3.0	3.2
22. Power boilers	mill. kw.	1.1	2.5	3.0	3.2
23. Electric transformers	mill. kva.	12.5	20	35	40
24. Electric motors	mill. H.P.	3.6	5.8	9.5	11.5
25. Electricity generation	GWH	72	120	200	245

The projections beyond 1978-79 are in their very nature much more tentative and would undergo revision and improvement as more data become available and further studies are undertaken. But as long as the basic objectives of development remain the same, it is unlikely that there will be any significant change in the broad profile of the sectoral growth indicated in the Fifth Plan perspective.

It will be necessary to ensure that the structure of demand harmonizes with the pattern of output envisaged in the perspective. The structure of demand will have to change keeping in view the need of rapid growth,

reduced inequality and progressive self-reliance. In other words, it will have to change in favour of investment and social consumption and in the direction of reduction in dependence on foreign aid. This implies a progressive decline in the share of private consumption. It is projected that private consumption as a percentage of gross national expenditure would decline from 75.9 per cent in 1973-74 to 67.5 per cent in 1985-86. Public consumption will go up marginally from 11.9 per cent to 12.5 per cent over the same period. Capital formation is, however, estimated to rise from 13.7 per cent to 19.7 per cent. As the rate of capital formation approaches 20 per cent, the economy will be in a position to substain a rate of growth of 6.5 per cent per annum, thus, doubling its G.N.P. every 11 years.

The improvement in the rate of capital formation will be accompanied by progressive reduction of inflow of external assistance. Gross foreign aid is estimated to decline from Rs. 783 crores in 1978-79 to Rs. 100 crores in 1983-84 and altogether disappear in 1985-86. This would call for a vigorous and substained export drive. With its enormous reserves of high grade iron, the country has a good potential for production and export of iron and steel. Among the non-ferrous metals, aluminium has substaintial export potential. Engineering goods is another area with a very large export potential. In recent years there has been a rapid expansion in the export of pearls and precious stones, jewellery and handicrafts. We have great advantage of skill and abundant manpower in this field. We have also great potential in marine products. The varied resource endowment of the county and the size of the internal market make it possible to produce economically a large number of items which will effect substantial import substitution. The object of self-reliance requires that all such opportunities for import substitution are exploited. This would be a major thrust of policy during the next two Plans.

The growth in public consumption is needed and justified in view of the need for further expansion of social services. It is also envisaged that the growing public consumption and investment will have to be supported by progressive expansion of public savings. The policy of reliance on public savings has a sound logic. Public savings is not only very necessary but also a very desirable means of stepping up domestic savings. If the resources at the disposal of the Government can be increased by reducing the disposable incomes of the well-to-do, this will be very desirable in itself. Moreover, higher private savings means higher capital formation by the better off sections of the people and this would lead to further inequality of incomes and wealth. Increasing savings in the hands of the public authorities would also facilitate their direct investment into socially desirable channels. Thus increasing public savings would be an effective instrument of securing growth with social justice.

The projected improvement in the rate of savings implies a marginal

rate of saving of over 26 per cent in the Fifth Plan and about 28 per cent thereafter. For the entire perspective period, the marginal rate of saving works to 27.3 per cent. This is doubtless a rate which exceeds our past record in this area but given the proper political will, it is not beyond the capacity of the economy to achieve.

Thus, at the end of the perspective period, there will be a distinct progress in the realization of our basic objectives of removal of poverty and self-reliance. But, as postulated above, realization of the above perspective depends upon a number of conditions being fulfilled. The rate of savings and investment in the economy must be substantially raised and a growing proportion of this will have to be channeled into the public sector. This constitutes a serious challange in as much as the rate of savings and capital formation in the economy as a whole and particularly in the public sector has been not only stagnant but decelerating. The production targets must be achieved as scheduled. Or else, the disproportionalities between the changing requirements of the society and the emerging pattern of production will get further accentuated, defeating the twin purpose of reducing inequality and attaining self-reliance through import substitution and export promotion. Population growth is another crucial parameter in the growth process and its control depends very much on the success of the family planning programmes which are being envisaged.

To sum up, one may say that the tasks outlined in the perspective plan for development are not merely very urgent but also quite formidable. Yet it must be clearly understood that we are engaged in a race against time. Any delay in getting over the basic disproportionalities in the economy which have arisen largely from inadequate development in sectors such as food and fuel will compound our difficulties further. This is all the more true because of the rapid increase in population levels which has been experienced in the past. Partly as a result of "demographic inertia" and partly because of continued population growth at fairly substantial rates though on a gradually diminishing basis, the land-man ratio is getting increasingly unfavourable. If this growing demographic pressure is not counteracted by an increase in capital stock per head as well as in energy consumption per capita, we are likely to remain caught in a low level equilibrium trap. It should also be borne in mind that this low-level equilibrium is not a stable configuration either. Hence, danger of slippage is a very great.

To carry out the structural changes in the economy, far-reaching changes in the social sphere will be needed. There are a very large number of complex issues involved. But changes in attitudes as well as in methods of economic organization are going to prove very crucial if India has to develop an egalitarian economy accompanied by progressively higher levels of social and economic welfare.

ANNEXURE

Selected Output Target/Projections and Achievements

Item	*Unit*	*Fourth Plan Target Projection*	*1973-74 estimated actual*
(1)	(2)	(3)	(4)
1. Foodgrains	mill. tonnes	129.0	103.6
2. Pulses	mill. tonnes	15.0	9.7
3. Oilseeds	mill. tonnes	10.5	8.7
4. Sugarcane (in terms of *gur*)	mill. tonnes	15.0	14.0
5. Cotton (unit)	mill. bales *	8.0	5.8
6. Jute	mill. bales	7.4	6.2
7. Coal	mill. tonnes	93.5	81.2
8. Iron ore	mill. tonnes	51.4	34.4
9. Crude petroleum	mill. tonnes	8.5	7.2
10. Sugar	mill. tonnes	4.7	37.7
11. *Vanaspati*	thou. tonnes	625	450
12. Cotton yarn	mill. kgs.	1150	970
13. Cotton cloth	mill. metres		
14. Mill-made	mill. metres	5100	7770
15. Decentralized	mill. metres	4250	
16. Jute manufactures	thou. tonnes	1400	1074
17. Paper and paper board	thou. tonnes	850	709
18. Newsprint	thou. tonnes	150	49.5
19. Leather footwear	mill. pairs	25.0	14.5
20. Automobile tyres	mill. nos.	6.0	4.6
21. Bicycle tyres	mill. nos.	35.0	19.3
22. Petroleum products (incl. lubricants)	mill. tonnes	26.0	19.9
23. Nitrogenous fertilizers (N)	thou. tonnes	2500 0	1062
24. Phosphatic fertilizers (P_2O_5)	thou. tonnes	900.0	323
25. Sulphuric acid	thou. tonnes	2500 0	1212
26. Caustic soda	thou. tonnes	500.0	467
27. Soda ash	thou. tonnes	550.0	478
28. Drugs and pharmaceuticals	Rs. crores	250.0	420
29. Cement	mill. tonnes	18.0	14.6
30. Mild steel	mild steel	8.1	4.7
31. Tool, alloy and special steel	thou. tonnes	220	400
32. Aluminium (ingots)	thou. tonnes	220	146
33. Copper (ingots)	thou. tonnes	31	13
34. Steel castings	thou. tonnes	225	68
35. Steel forgings	thou. tonnes	220	95

*Bale—180 kg.

ANNEXURE (Cond.)

Selected Output Target/Projections and Achievements

Item	Unit	Fourth Plan Target/ Projection	1973-74 estimated actual
(1)	(2)	(3)	(4)
36. Agricultural tractors	thou. no.	50.0	24.2
37. Machine tools*	Rs. crores	65.0	73.4
38. Metallurgical and heavy equip.	thou. tonnes	75.0	30.0
39. Cotton textile machinery	Rs. crores	45.0	35.0
40. Cement machinery	Rs. crores	19.0	6.3
41. Sugar machinery	Rs. crores	21.0	20.4
42. Printing machinery	Rs. crores	8.0	0.9
43. Rubber machinery	Rs. crores	12.0	1.5
44. Paper and pulp machinery	Rs. crores	13.5	4.7
45. Coal and other mining machinery	Rs. crores	13.0	6.9
46. Hydro turbines	mill. KW	1.65	0.7
47. Thermal turbines	mill. KW	1.30	1.4
48. Power boilers	mill. KW	1·30	0.8
49. Electric transformers	mill. KVA		
50. Above 33 kva	mill. KVA	6.4	11.7
51. 25 kva and below	mill. KVA	5.5	
52. Electric motors	mill. h.p.		
53. Above 200 h.p.	mill. h.p.	0.68	2.9
54. 200 h.p. and below	mill. h.p.	2.72	
55. Dry batteries	mill. no.	600.0	602.0
56. Storage batteries*	thou. nos.	1800.0	1272
57. Commercial vehicles	thou. nos.	85.0	42.7
58. Motor cycles, scooters mopped and 3-wheelers	thou. nos.	210	162
59. Diesel locomotives	nos.	1985	
60. Railway coaches	nos.	—	
61. Railway vehicles	thou. nos.	21.5	
62. Bicycles*	thou. nos.	3200.	
63. Electricity generation	GWH	86.0	66.4

*Organized sector only.

EPILOGUE

In the foregoing chapters an exhaustive account has been given of different sectors of the economy and different aspects of activity in each sector. These chapters have dealt in each case with historical trends of the past, the present status, and also future prospects. We have, thus, had a view of each aspect or sector considered separately. In the course of this discussion we have had an adequate idea of the inter-relationships of each aspect or sector of the economy with closely related aspects and sectors. Even so, it should be useful to compose these parts into a whole for a broad overall perspective of the status, the state, and the prospects of the Indian economy. We propose, thus, to focus attention on the overall position of the Indian economy as it is today. We would not, therefore, unduly dilate upon the current problems which are of transitory nature. We attempt here to take stock of the basic strength and the weaknesses of the economy as an on-going and functioning entity. In doing so, we first consider the present status of the Indian economy by directing attention to its comparative position among the countries of the world. Next, we consider the stage of the economy reached today in the course of its evolution since independence. Thereafter, we proceed to examine the nature of development effort that has been going on since then, directing attention to the strategies that have been evolved to nurse this process. We finally indicate the course which the economy is likely to pursue in future, thanks to the direction that is being given through centralized planning.

Let us first identify the economy in terms of its extent, its size and broad structure. The economy must be considered as co-extensive with the nation, or the country, as a whole. Its geographical extent is nearly 3.3 million sq. kilometres inhabited at present by some 600 million people. Within the populous vastness of the economy, there no doubt obtains considerable diversity of resource endowment and in socio-cultural milieu. The economic activity of this mass of people yields an annual per capita income of around Rs. 600 (at current prices). The

distribution of the income, however, is very skewed and a substantial proportion of the population live, in abject poverty, in dire want of basic necessities of life. The second interesting feature which should be mentioned here is that more than two-thirds of the population depend on agriculture for their livelihood. This predominance of agriculture is also reflected in the composition of what has been called the gross domestic product, which represents the aggregate outcome of the economic activity of the population as a whole. Agriculture accounts for nearly half of this aggregate; industry, including mining and construction, for about one-fifth; trade and commerce for about one-tenth; and services, including both public and private, for the remaining about one-fifth. This nature of composition of the gross domestic product reflects the large scope for development effort which remains to be undertaken in this economy which has been developing for over two decades now at a significantly higher pace than before. The effort of these decades represents in effect only the first steps on the path of development leading to the emergence of a viable modern economic structure based on 'optimum' utilization of our resource endowments.

I

For an idea of the present status of the Indian economy in the world context we must confine attention to selected variables indicating the size of the economy. The variable which we have chosen for this comparison are area, population and national income or gross national product. We will also refer to per capita national income and the composition of gross domestic product for indicating differences in the character of economic activity among these countries.

For the purpose of this comparison, it is not necessary to consider the entire list of over 200 countries for which the United Nations compiles statistics in their annual publications. We have taken from this list all countries which have a population of more than 10 million. Applying this criteria, we get a list of 51 countries.* It may be noted, however, that taken together these 51 countries account for nearly nine-tenths of the world's population.

In terms of area, India is the seventh largest country in the world. The largest country is, of course, the U.S.S.R. which occupies about one-sixth of the aggregate area of all nations of the world. India accounts for only around 0.5 per cent of the world aggregate. The geographical extent of our country is less than a tenth of that of U.S.S.R. and about one-third of that of Canada, China or U.S.A. Among the countries occupying positions adjacent to India in this order, Brazil extends over

*All data for international comparison are taken from the latest *United Nations' Statistical Year Book, 1973*: Tables 18, 143, 178 and 182.

8.5 million, Australia over 7.7 million, and Afghanistan over 2.8 million sq. kilometres, as compared to 3.3 sq. kilometres of India. The smallest amongst these 51 countries is the Netherlands spread over only 41,000 sq. kilometres, which measures just over 1 per cent of the Indian areal extent. Similar is the comparative position of India with reference to the neighbouring Sri Lanka, which is almost as small as the Netherlands.

In population, India occupies the second position in the world, preceded in that order only by China. It is also notable that the U.S.S.R. with third position in the order, has a population measuring only 40 per cent of that of India. The U.S.A. with around 210 million people closely follows U.S.S.R. in that order. It is striking that each of the countries with a larger geographical extent has a much smaller population than India, with the only exception of China. It must be mentioned, however, that the difference between India and China is much greater in area than in population, with the result that in terms of density China is much lower down in the scale; China has 83 persons per sq. kilometre as against 172 persons per sq. kilometre in India. Among the 10 largest countries of the world we have also Indonesia, Japan, Brazil, West Germany, Nigeria, Bangla Desh, and Pakistan. As compared to the first three of these countries India's population is more than 5 times as large, while when compared to the latter four it is around 10 times as large.

Ignoring the differences in the level of development, we may compare these countries in terms of population density representing a very crude measure of the relative pressure of population on land. In the descending order arranging these countries according to density, Bangla Desh evidently occupies the top position; from the available figures for 1963 it is shown that Bangla Desh then had a density of around 370 persons per sq. kilometre Notable among the countries with densities much higher than India are the Netherlands, South Korea, United Kingdom, Sri Lanka and Italy. India occupies the ninth position in this order with a density of about a half of that of Bangla Desh, South Korea or the Netherlands. Leaving aside the countries in the North and Latin America, Middle East and Africa, where densities are very low, it is notable that India's density is much higher even as compared to some of the European countries like Czechoslovakia, France, Hungary, Poland, Romania, Spain and Yugoslavia.

With regard to gross national products (G.N.P.) we do not have figures for several of these countries, including Argentina, China and U.S.S.R. Arranging the remaining 38 countries, India is found to occupy the eighth place among them. This order is led by the U.S.A. whose G.N.P. is 23 times as large as that of India. Canada precedes India in this order in the seventh place with a G.N.P. as much as twice that of India. Spain follows India in the ninth place with a G.N.P. smaller than that of India by only about 8 per cent. The smallest G.N.P. amongst these countries, that of Nepal, is

only a fraction of that of India.

An interesting feature of India's position in the world is that while manufacturing activity accounts for a comparatively much smaller proportion of the G.N.P. as will be shown later, in absolute terms manufacturing output of India is larger than that of most countries of the world barring some of the leading industrial countries like the U.S.A., Japan, the U.K., West Germany and France. This comparative position is reflected in manufacturing employment in the organized sector which is around five million in India. This measures less than a third of the corresponding figure of the U.S.A., less than a half of that in Japan and much less than three-fourh of that of Germany or the U.K. But it is comparatively much larger than that of other countries like Poland, Italy, East Germany, Spain, Brazil, Argentina and Canada. India can be included in effect amongst the leading producers of manufactured goods.

It seems clear thus that the Indian economy commands a position of relative importance in the world in terms of its geographical extent, its population, size, its gross national product, and the size of its manpower engaged in organized manufacturing sector.

But once we turn to per capita national income, the position is drastically reversed. The per capita income of India amounts to only about 90 dollars per annum. Among the 39 countries for which the requisite comparable data are available, India occupies thirty-fifth position. It takes precedence, by a sizable margin, over Nepal, Ethiopia, Afghanistan and Nigeria. It is in turn preceded, by a small margin, by such countries as Zaire, Tanzania, Sudan, Indonesia, and by a significantly larger margin by Uganda, Sri Lanka, Kenya, Thailand, South Vietnam and Egypt. At the other end of the scale we have the well-known prosperous nations of the world, including Australia, Canada, West Germany, France, Japan, the Netherlands, the U.K. and the U.S.A. The Indian per capita national income of around 20 dollars per annum measures 1.8 per cent of that of the U,S.A., 2.1 per cent of that of Canada, 2.4 per cent of that of West Germany, 2.6 per cent of that of France, 2.8 per cent of that of the Netherlands, 3.1 per cent of that of Australia, 3.5 per cent of that of the U.K., and 3.6 per cent of that of Japan. This comparison is not adequate as corresponding figures of major countries like U.S.S.R. and China are not available. Even so, all available indications suggest that the Indian per capita national income is below that of China and very much lower than that of the U.S.S.R.

The indication of the great extent of relative under-development of the Indian economy provided by comparative meagreness of its per capita national income is equally reflected in the structure of its economic activity. The share of agriculture in gross domestic product in the case of India is 45 per cent. This compares favourably with the corresponding figures for a few of the other under-developed countries. This proper-

tion is higher than in India only in Uganda, Ethiopia and Nepal. In contrast it is much lower in most of the so-called developed countries. Agriculture accounts for only 3 per cent of the G.N.P. in the U.S.A., the U.K. and West Germany, 4 per cent in Canada, 6 per cent in Australia, France and Japan, and 7 per cent in the Netherlands and Venezuela.

If we consider in contrast the proportion of G.N.P. derived from manufacturing, mining and construction activities, India's position is sharply different. Only 19 per cent of our G.N.P. is derived from such manufacturing activity. This proportion is a little higher than the corresponding proportions shown by Tanzania, Uganda, Sudan, Sri Lanka, Nepal, Kenya and Ethiopia. The corresponding proportion of several other countries are very large. The share of this sector in G.N.P. is 32 per cent in Canada, 34 per cent in the U.S.A., 35 per cent in Argentina, 37 per cent in the U.K. and 41 per cent in Japan. It is even higher for several countries of Eastern Europe; here it measures 62 per cent of the G.N.P. in Poland, 63 per cent in the U.S.S.R. and 73 per cent in Czechoslovakia.

We may also refer to the relative position of the Indian economy in the world market. For this purpose, we will refer separately to its position in the export market for commodities and the corresponding import market. Here again our comparison is limited to countries for which relevant data are available from United Nations' sources. According to these statistics, India does not figure among the leading countries in either of these markets. The value of either exports or imports measures only about 5 per cent of the G.N.P. The ratio of the aggregate value of foreign commodity trade (exports plus imports) to G.N.P. is very much smaller for India when compared to most countries of the world. This ratio amounts to 10 per cent for India and also the U.S.A. It represents a small fraction of the corresponding ratios for industrialized countries like West Germany, France, the United Kingdom, Japan and also Canada on the one hand, and of the corresponding values of the developing countries like Iran, Iraq, Morocco, Nigeria, Tanzania, Venezuela and Zaire, on the other.

Arranging these countries in a descending order of importance according to the value of annual exports, we find India placed at almost the end of the order. The value of its annual commodity exports measures less than 5 per cent of that of the U.S.A. or West Germany, and less than 7 per cent of that of Japan, France or the U.K. The comparative position of India as an importer is similar. On the whole, it is clear that this large economy of ours commands little importance in the international trade.

The comparatively low level of development of the Indian economy is even more strikingly reflected in the level of consumption of certain key commodities. From a large list of these consumption items, we need refer in per capita terms to only three selected ones, namely, energy and steel, reflecting the degree of industrialization and sugar, reflecting the level of people's living. Among the 51 countries of our list, India

occupies thirty-seventh position in the descending order of per capita energy consumption. Our annual consumption of all types of energy amounts to only 186 kilograms of coal equivalent. This is somewhat larger than the corresponding amount of Kenya, Pakistan, Sri Lanka, North Vietnam, Indonesia or Sudan, and very much larger than that of Zaire, Tanzania, Uganda, Nigeria, Afghanistan, Ethiopia or Nepal. Even so, it represents only a small fraction of the corresponding amounts of the countries at the top of the order. Our per capita energy consumption measures only 1.6 per cent of that of the U.S.A., 1.8 per cent of that of Canada, 3.1 per cent of that of Czechoslovakia and between 4 to 5 per cent of that of the Netherlands, Australia, the United Kingdom, West Germany, the U.S.S.R., Poland, France or Japan.

Our per capita consumption of steel is about 16 kilograms per annum. Our comparative position in the order is about the same, the same countries taking here precedence over us as in respect of the consumption of energy. Our lead over Kenya here is marginal, but it is substantial when compared to several other countries including Pakistan, Indonesia and Sri Lanka. The insignificance of our per capita steel consumption is again indicated by the fact that it measures only around 2.5 per cent of that of the U.S.A., Czechoslovakia, West Germany, Japan or Australia. Thus, while we may claim some importance in the industrial world on the basis of the size of employment in organized manufacturing activity, the level or degree of our industrialization is shown to be of little significance in terms of per capita consumption of basic items of energy and steel.

Similar is the comparative position of our level of living as shown by our per capita consumption of sugar. It amounts to only 7 kilograms per annum and this is amongest the lowest in the world. Among the fourty countries of our list for which comparable figures are available, our consumption is higher than that of only China and North Korea. The highest sugar consumption, recorded here for the U.K., amounts to 52.3 kilograms. It is followed by 50.3 kilograms of the U.S.A., 47.0 kilograms of Canada, 46.4 kilograms of Australia and 44.2 kilograms of Hungary. Included among the other countries whose annual per capita sugar consumption is five times or more than that of India are Poland, Czechoslovakia, Argentina, the U.S.S.R., Venezuela, Brazil, East Germany, South Africa and Mexico.

Thus, we may conclude that the Indian economy in terms of both area and population is one of the largest in size among the economies of the world but it is nonetheless one of the most under-developed among them as shown by the level of its per capita national income and by per capita consumption of key items like energy, steel and sugar or by the relative preponderance of primary, particularly the agricultural activity in the structure of its production.

II.

Today, the Indian economy is decidedly on the march. For a better appreciation of its new dynamism it is necessary to recall briefly the historical context in which the process of infusing it into the economy was launched soon after independence. In the course of history stretching back over about two hundred years from that date, the western nations had achieved, through industrial revolution and technological progress, their transformation into highly developed modern economies of affluence. During the same period, it was India's lot to endure colonial status within the British Empire and subserve interests other than her own. The lifting of the British rule in 1947 removed at one stretch the basic all-pervasive constraint on our potential for economic growth. It was, however, accompanied by the partition of the country which disrupted beyond repair the economic structure that had emerged during the era of British imperialism in India.

That era was one of economic transition induced by our contact with the West. The first phase of this long drawn out process of transition lasted up to the middle of the nineteenth century. Its focus was on external commerce which grew rapidly on account of the discovery of new sea routes and progress of maritime transportation. It was, at the same time, a period in which the British virtually eliminated the rival colonial powers, the French and the Portuguese, and progressively extended their political rule and influence over the entire sub-continent. Those who came to trade with us became thus our rulers.

The next was the phase of consolidation of the colonial rule. It extended upto the First World War. In the course of this period, a viable administrative, judicial and fiscal superstructure was imposed all over the country for achieving a semblance of political unification and for preserving law and order. Internal peace and security were apparently maintained all through this period.

The prime motivation of the rulers then was to render utmost help to the progress of their country towards industrial supremacy in the world. This was eminently fulfilled by operating a set of colonial policies which, on the one hand, invoked *laissez faire* in a manner involving not merely neglect of indigenous needs and interests but also a large scale decay and destruction of native crafts, skills and enterprise and, on the other, vigorous promotion of British capital, know-how and enterprise in the opening up of the country through an extensive network of railways and roads, and the 'mining' of the colony through trade, commerce and finance. British capital established the tea and coffee plantations and the jute industry to supply the needs of their expanding empire and also pre-empted a sizable part of the growth of the premier cotton textile industry to which the nascent indigenous enterprise was attracted by the opportunities of catering to domestic demand created by the changing conditions of the

international market after the Civil War in America. There did thus appear during this phase rudiments of modern industry oriented overwhelmingly to the needs of Great Britain in particular and of the western nations in general.

There was correspondingly a great expansion of foreign trade of India. This came to reflect her changed role as a primary producer, sending out agricultural produce and other raw materials and taking in manufactures fabricated outside, often from her own raw material exports. The resulting decline in traditional industry increasingly threw craftsmen and artisans out of employ to swell the ranks of pauperized peasantry.

But agriculture had kept on groaning under the new dispensation of revenue and judicial procedures which served only to facilitate the oppression of the peasantry by landlords, moneylenders, middlemen and the like parasites. Apart from the emergence of cash crops, like cotton, in a few places, there was nowhere, in the vastness of India's agriculture, any sign of change in the traditional low productive subsistence agrarian structure. On the whole, this phase was marked by steady deterioration of agricultural conditions and indeed in the general economic position of the country.

The third and final phase of the transition under the British began with the First World War and ended with the end of their rule after the Second. This period is more remarkable for the rise of Indian nationalism and for its political progress that culminated in independence in 1947 than for any significant advancement in the economic field. However, we must note that some progress was made by the process of industrialization on account of the two wars and the grudging adoption and practice of 'discriminating protection' by the colonial Government in the inter-war years. The wars, the second much more than the first, witnessed heightened economic and industrial activity but their success in promoting industrial growth was counter-balanced by the dilapidation of the basic infra-structure of overhead facilities and services coupled with a great accumulation of industrial wear, tear and obsolesence. The discriminating protection had succeeded, however, in promoting the growth, especially during the period of the great depression, of some of the major industries of pre-independence India including the iron and steel, sugar, cement and paper industries. There was also noteable growth of mining particularly of coal and iron ore during this period. Some progress was concurrently witnessed in internal and external trade, banking, insurance etc. But in the preponderant agricultural sector, no redeeming signs had as yet appeared. New cash crops had emerged, market economy had made further inroads; co-operative credit had made a beginning, and research, extension and demonstration were given some attention. But all these proved much too inadequate to stem the continuing secular deterioration of agrarian conditions all over the country. Pressure of population had kept on increasing to damage the viability of outmoded

traditional structure, while the great depression had added to the misery of the peasantry. Before the end of the phase, it became clear that Indian agriculture which had traditionally generated surpluses of grain for export could not be relied upon to meet the domestic requirements in full.

On the whole, achievements of the British rule in the economic sphere were not at all impressive. As one of the most charitable assessments of the British impact on the Indian economy concludes, "In 1939, after a hundred years of British investments, peace, order and modern commercial law, after nearly a century of modern railways, after eighty years of Indian enterprise in a vast internal market of 300 million souls, India still had an industrial establishment of only 2 million workers, a steel output of less than a million tonnes and a population which still depended for as much as 80 per cent of its livelihood on a static, over-crowded, agrarian economy. Not by any stretch of imagination can this be called a record of dynamic growth. It is simply the first sketch of a first beginning."*

It is this economy that was called upon to contribute its utmost to the mobilization of men and materials in favour of Great Britain and her allies in the Second World War. The relentless pursuit of this overriding purpose resulted to wholesale dilapidation and obsolesence of the economic structure, including its agricultural component which failed to prevent the forgotton scourge of famine which afflicated populous Bengal in 1943.

Before anything could be done about this general dilapidation of the economy, there followed, as mentioned earlier, the partition to disrupt it beyond repair. The disruption was wholesale in character. It disrupted trade, fiscal, banking and financial structures, which had emerged to serve undivided India as a unified whole. A significant part of internal trade became external with a clear possibility of its diversion away from India. There was considerable aggravation of the balance of payments position.

More fundamental were the sudden dislocation of the transport and communication systems, the disruption of the bigger industries like jute and cotton textiles involving separation of the manufacturing processes in India from important sources of raw materials left in Pakistan. Similar was the loss of certain minerals like gypsum, salt and sulphur. Indian consumer industries suffered also the loss of sizable consumer markets in the provinces now constituting Pakistan.

Indian agriculture was likewise disrupted on account especially of disproportionate loss of area under irrigation. India's share in the production of food and commercial crops too was comparatively smaller. India became comparatively poorer also in the quality of its livestock.

In any case, India was burdened with a larger proportion of population as compared to its share in total area and a larger proportion also

*Ward, Barbara, *India and the West*, Hamish Hamilton, London, 1961, p. 131.

of urban population. In addition, there were the immediate problems associated with the exchange of population on a mass scale, which in quantum and quality was unfavourable to India.

Immediately, the new Government of India had thus to address themselves to the gigantic tasks of rehabilitating nearly 20 million displaced persons and reorganizing its economic and industrial structures on a narrower base. These were accomplished to a large measure in the immediate post-independence years, during which the Government successfully ushered in the new policy based on a constitution providing for a liberal democratic rule. It proceeded further to institutionalize Central planning for economic and social development, which had to begin almost from a scratch.

III

Planning for comprehensive social and economic development began thus in 1951. It has been continuously pursued since then on the basis mainly of quinquennial Plans. The first three Plans were successively undertaken. At the end of the Third Plan, however, the situation warranted postponement of the introduction of the fourth quinquennial Plan by 3 years, during which the process had continued on the basis of Annal Plans. The Fourth Plan was consequently undertaken from 1969 to 1974 and the Fifth Plan is now at the close of its stage of formulation.

The Plans represent a conserted effort undertaken by the Government on a massive scale. The outcome of this effort can be easily seen by comparing the position of the economy in 1951 with that of the latest year for which relevant data are available. We will take for our comparison here the period of two decades from 1950-51 to 1970-71. In the course of this period, national income, as measured in constant 1960-61 prices, increased at an annual average rate of 3.6 per cent, from Rs. 92,420 million to Rs. 1,87,550 million. It had thus more than doubled over the period. But the population too had increased during the same period at an annual average rate of 2.1 per cent, from 358 million to 540 million. Consequently, per capita income at constant prices increased at a rate of only 1.5 per cent, which is much less than half the rate of growth in the national income.

To indicate the structural change that accompanied this expansion of the economy we may refer to the sectoral distribution of the gross domestic product at factor cost measured in constant in 1960-61 prices. The relevant figures are given in Appendix, Table II. It may be noted that the figures for 1950-51 are not strictly comparable as they do not distinguish between the shares of commerce, transport and communications. Adequate idea, however, is given by the comparison between 1955-56 and 1970-71. The structural change indicated by this comparison is one of significant decrease in the relative contribution of agriculture to gross

domestic product. The corresponding increase has been shared by all the remaining sectors. The difference of 11.4 points representing the decrease in the share of agriculture is corresponded by an increase of 3.6 points in the share of manufacture, 3.4 points in the share of other services, including communications, and 1.6 points in that of construction. Substantial gains appear to have accrued also to the transport sector and to the combination of public utilities representing electricity, gas and water supply. To take a broader view of this broad structural change in the economy, it may be said that the share of primary production, including agriculture, mining and quarrying, was reduced by 11.2 points, while the secondary sector recorded a gain of 7.8 points and the tertiary sector, of the remaining 3.4 points.

A closer view indicates that the pace of growth differed cosiderably between different constituents of each sector in the economy. The output of agriculture increased at an annual rate of 3.3 per cent but within agriculture production of foodgrains recorded a rate of 3.5 per cent. A part of the increase in foodgrains production accrued significantly from improvement in productivity; foodgrains production per hectare increased during the period by 1.9 per cent per annum. In the industrial sector, the output of capital goods increased at a rate of 10.6 per cent per annum, as against the overall rate of 6.5 per cent.

Detailed figures of physical output for the terminal years of the period indicate a significant process of diversification of the domestic product. Growth has been the characteristic of almost all types of industries and mining. But major gains have been in the field of basic development. Irrigation potential, for example, has nearly doubled during the period and it is now estimated that nearly a half of the ultimate irrigation potential has already been harnessed. In mining, the production of coal increased from 33 million tonnes to nearly 75 million tonnes and of iron ore from 3 million tonnes to 23 million tonnes. In metallurgical industries the production increases recorded by different items over the period were from 1.7 million tonnes of 7.0 million tonnes of pig iron, from 1.5 million tonnes to 6.1 million tonnes of steel ingots, and from 1 million tonnes to 4.5 million tonnes of finished steel. Most remarkable here has been the growth of aluminium output, which increased from 4 million tonnes to 167 million tonnes.

A variety of engineering industries have come up during this period. Machinery and tools of all kinds are now produced within the country. For example, the new lines are sugar mills and cement plants; their combined production increased in terms of value from Rs. 6 million to Rs. 180 million. Railway wagons, automobiles including the new lines of motor-cycles and scooters, power driven pumps, diesel engines, bicycles and sewing machines have recorded manifold increases.

Power generation has multiplied several times and considerable pro-

gress has been made in enveloping the entire country by a unified electric grid system. Electrical engineering industries have, therefore, received a considerable boost. Production of power transformers increased from 179 thousand kva to 886 thousand kva and of electrical motors from 99 thousand h. p. to 2721 thousand h. p. Production of electric fans and lamps and a variety of electronic products, including radio receivers and television sets, has tremendously increased.

In the field of chemical and allied industries, the fertilizers have led the pace. In 1950-51, the production of nitrogen fertilizers amounted only about 9 thousand tonnes of Neptha and that of phosphatic fertilizers, 2 thousand tonnes of P_2O_5. In 1970-71 the production of the former was 830 thousand tonnes of Neptha and of the latter 229 thousand tonnes of P_2O_5.

Within textiles the traditional jute industry recorded a nominal progress. But the cotton textiles have witnessed significant expansion. Here, rayon yarn and other synthetic fabrics have grown much more rapidly; production of rayon yarn increased, for example, from about 2 thousand tonnes in 1950-51 to 98 thousand tonnes in 1970-71.

It would appear, thus, that one of the basic initial weaknesses of the economy, namely, lack of basic development, that is, the absence of capital goods industries supplying the needs of immediate and final consumer goods industries, has been overcome to a significant extent. Today, the Indian economy is much more balanced. Its production base has been greatly diversified. The scale of its activity is correspondingly larger and its content much more elaborate and complex. Its external relations too have enlarged in scale and they are different in character and in direction.

All these represent considerable achievements of Indian planning, though it is true that economic development has as yet failed to acquire self-sustaining momentum. Overall rate of 3.5 per cent economic growth cannot indeed be viewed as quite satisfactory from the point of view of the needs of the people. Even so, it appears very remarkable in the light of the odds that the process had to face in the initial stages and in comparison to what happened during the preceding period of agrarian stagnation coupled with sluggishness of industrial growth under the British rule. It is remarkable also for the fact that the effort has been pursued by the Government within the framework of a liberal democratic polity.

IV.

Even so, it is readily admitted that these achievements fell below the targets set by planning. For example, the First Plan was conceived as a first step towards the doubling of per capita income in real terms at the end of 25 years of continual planning in 1976. By 1971, however, per capita real income had risen only about 33 per cent and the date of its

doubling seems to have receded far into the future. The explanation of this grievous shortfall does not lie in the fact of population growth alone; it must extend to recurring acts of omissions and commissions on the part of ruling Governments wilfully committed at times in the larger interests of the nation and to pre-existing and newly emerging factors beyond their control.

What is beyond any doubt is the firm commitment of the Government to undertake the development effort on a continuing basis and on an ever-enlarging scale. This is adequately reflected in the investment outlays of the different Plans given below:

Total Plan Outlay

Plan		*Rs. Million*
First Five Year Plan	(1951-56)	38,600
Second Five Year Plan	(1956-61)	79,720
Third Five Year Plan	(1961-66)	129,765
Three annual plans combined:	(1966-69)	103,467
Fourth Five Year Plan	(1969-74)	257,540
Fifth Five Year Plan (Draft)	(1974-79)	534,110

These outlays are expressed in current prices. A part of the rise in outlays represents inevitably the impact of price changes which have consistently maintained upward direction during the period in question. But the successive enlargements in outlays are so very sizable as to clearly indicate a progressive intensification of the development effort in real terms.

Mobilization of financial resources on such an increasing scale called for generating savings from within the economy that was characterized by generally very low levels of consumption. This was attempted from year to year with varying success. Domestic savings measured somewhat less than 5 per cent of the national income at the beginning of planning. This proportion rose to 8 per cent by 1955 and 12 per cent by 1964. Thereafter, it fell back 8 per cent in the difficult years of 1967 and 1968 to rise again to 10 per cent in 1971. This was supplemented by inflow of capital from outside in order to increase net investment as a proportion of national income to 8.5 per cent in 1955, 14.9 per cent in 1964, 11.6 per cent in 1967, 11.1 per cent in 1968 and also in 1971. Inflow of foreign capital into the economy had increased during the sixties to a level of 3.6 per cent of national income in 1967 but its relative importance has progressively decreased all through the subsequent years. It is in any case clear that a high level of capital formation was maintained all through planning period. This is to be admitted even while conceding that a higher rate

was indeed necessary to avoid recurring needs, difficulties and bottlenecks in the progress of development.

The manner in which the task of channelizing investment in conformity with the goals of development was handled by planning is reflected broadly in the sectoral distribution of aggregate outlays noted above. The relevant figures are given in Appendix, Table V. It must be noted in this connection that a distinguishing feature of Indian planning has been the limitation of the direct responsibility of the Government to basic development, including the infra-structure of overhead facilities and services, heavy and basic capital intensive industries and also key industries involving defence and security considerations, in the public sector. For the rest, their job evidently was one of promoting, guiding and monitoring growth and development in the private sector. The share of public sector in the aggregate Plan outlays has progressively increased for the very reason that basic development attracted priority even from the point of view of facilitating growth in the private sector. Even so, it is clear that the quantum of private sector outlays has consistently increased from less than Rs. 15 billion in the first to nearly Rs. 90 billion in the Fourth Plan and further to the proposed outlay of Rs. 162 billion in the Draft Fifth Five Year Plan.

The sectoral distribution of outlays for each successive Plans rested on the assessment of objective conditions under which the planning goals of income growth, employment generation and social justice had to be sought. In the first Plan the urgency of rehabilitating the economy, and strengthening in particular the base of food production, led to an emphasis on the agricultural sector. It was essentially a rehabilitation plan and as such it was quite successful. Thereafter, the main focus of concentration has been on industrialization and on the supporting infra-structure, where emphasis was increasingly placed on power development. Agriculture reasserted to claim high priority after especially the Third Plan when a succession of draughts had suddenly exposed its vulnerability. On the whole, it is clear that Plan priorities and the derivative sectoral distribution of investment outlays reflected a concern mere with growth of gross national product than with either employment or social justice, in other words, a concern more with the size of national income than with its equitable distribution.

The course of planning so pursued has not, in any case, been an easy one. The Second Plan's concentration on the promotion of industrial sector, particularly on the rapid increase in steel making capacity, was quite sound and logical but it met with frustration in the foreign exchange crisis to which it had contributed. It was during the more difficult later half of this Plan that the easier course of the deficit financing of development process was adopted. Then followed the border war with China in the beginning of the Third Plan and the war with Pakistan towards its

end. The end of that Plan coincided with the draught in Bihar and there followed a succession of poor harvests. The worsening of the situation in the agricultural sector led to a partial industrial recession in a period of inflationary pressures induced by the persistence with deficit financing. Recovery of agriculture and the success of the new agricultural strategy in initiating the Green Revolution in parts favoured with irrigation facilities helped to launch the Fourth Plan in an atmosphere of considerable optimism. Once again, however, an unanticipated influx of refugees on a mass scale into West Bengal led to the second more successful war with Pakistan, leading inevitably to aggravation of the inflationary pressures which have continued to characterize the present economic situation.

The succession of disturbing events beyond control of planning need not excuse all the shortfalls in the achievement. Planning was taken up in a spirit of adventure and it tended to raise anticipations much above the potentialities that could, in fact, be harnessed. It is also evident that the liberal democratic political frame under which it was consistently pursued, not only left considerable scope for uncertainty but also invoked a spirit of compromise in permitting extra-economic political considerations to influence the Plan decision-making processes.

It reveals also a number of deficiences that characterized the development effort. Most of these deficiencies relate implementation of Plans and programmes of development. It can be said, for example, that it should have been possible to operate a much better co-ordination between industrial growth and agricultural development. Further, it should have been possible to evolve a strategy of resource mobilization through more imaginative uses of fiscal, monetary, banking and financial policies in a manner that would have provided greater encouragement to generation of savings and avoided tax evasion and diversion of resources into unhealthy speculative and non-economic channels.

Criticism can be made with justification of the host of controls and regulations that were introduced for the purpose of channelizing the growth in the private sector on appropriate lines. Further, it can be deplored that adequate attention was not paid to the creation of technical and scientific capabilities within the country for handling the tasks of management in general and of project formulation and appraisal in particular. It can also be said that there was lack of co-ordination between policies of exports and imports and that in general the performance of foreign trade and exchange controls was not consistently up to the mark.

Concern with economic growth *per se* and the manner in which it was pursued appear to have resulted also in unequal sharing of the gains of development between different sections of the community. In the industrial sphere, concentratian of power could not be entirely avoided, while in agriculture the gains have been unequally shared between different regions and within each region between different classes. In general, the

relatively more prosperous sections of the community were able to pre-empt the gains of development.

V

Democratic planning remains in India a 'going concern', displaying a large measure of resilience in meeting the demands of changing times. It has shown remarkable flexibility in its approaches and strategies and has taken from time to time corrective action in the light both of its own experience and of critical public opinion which has all along been unsparing in debating the role of the Government in the process of development. Such a process of rethinking began with the experience of agricultural adversity in the middle sixties and was carried forward during the years of stagflation, when the performance of planning was viewed to be at its lowest ebb. The succeeding Green Revolution further revealed the possibility of development leading to accentuation of social inequalities. It was apparent that planning had not made any dent on the deteriorating employment situation and on the widespread incidence of mass poverty.

This reconsideration went beyond the functional aspects of planning to the need of reformulating the basic goals of development. This is well reflected in the preparation of the Draft Fifth Five-Year Plan. This Draft suggests an endeavour to highlight the goals of employment and social justice and to reduce the over-emphasis on economic growth *per se*, This document seeks to redirect the development effort in the light of an assessment of the course that the inhibiting growth of population may take. It enunciates removal of poverty and attainment of economic self-reliance as the two strategic goals of development. It spells out a long-term perspective of development up to 1986 in the light of these considerations and proposes a policy-frame for implementation, which planning has hitherto been lacking. With this, it displays its determination to consolidate the gains that have so far accrued and a sense of realism in dealing with the problems faced in administration, execution and implementation of the programmes of development.

The Draft Plan in defining its 'long-term perspective' suggests that in 1986 our population would be of the order of 705 million as compared to 547 million in 1971. Its structure would be somewhat different; proportion of infants, or of persons below 4, would decrease between these two dates from 16 to 11 per cent and that of children of 5 to 14 years in age would decrease from 26 to 23 per cent, while the corresponding increase would be from 53 to 60 per cent in the adult population and from 5 to 6 per cent in the old age group of persons above 60. It is anticipated that the proportion of the urban in the total population will advance over the period from nearly 20 to 24 per cent. With regard to employment, the perspective envisages the growth of labour force to operate during the period at a higher pace; the numerical strength of the labour force is

anticipated to increase from 170 million in 1971 and 183 million in 1974 to 248 million in 1986. The tasks of supplying the needs of 705 million persons at improved levels of living and of gainfully employing 248 million of them call for undertaking development on a scale substantially higher than the scale it has ever attained in the course of planning so far.

And at the same time, planning must realize the strategic goal of self-reliance. This goal has been emphasized ever since it was concretized by the Third Plan which said, "The aim must be to make the economy more and more self-reliant, so that it is able to support within a period of 10 to 12 years an adequate scale of investment from its own production and savings. Normal flow of capital may continue but reliance on special forms of external assistance has to be reduced progressively and eliminated." The Draft Plan envisages to achieve this aim over the next 12 years by 1986 and emphasizes that what it seeks "is a dynamic self-reliance where the rate of growth is accelerated, while, at the same time, developing the capability to sustain it essentially from our own resources. It is thus envisaged that by 1985-86 economic growth would be basically self-sustaining at a rate of 6.2 per cent per annum, which would be the highest ever attained by the economy on a sustained basis."

On the other strategic goal of removal of poverty, which too magnifies the size of development effort, the Draft Plan is equally emphatic. "The existence of poverty," it says, "is incompatible with the vision of an advanced, prosperous, democratic, egalitarian and just society implied in the concept of a socialist pattern of development. In fact, it holds a potential threat to the unity, integrity and independence of the country. Elimination of poverty must, therefore, have the highest priority." Elaborating its approach to the problem of poverty, the Draft Plan enunciates its development strategy as follows :

> "Our professed goal of removal of poverty requires that the growth strategy must seek not only a higher rate of growth than observed in the past but also reduced inequality in the distribution of income and consumption. The composition of growth must be such as favours the rural and urban poor. This calls for efforts in several directions. The pattern of production must lay emphasis on food and other articles of mass consumption. There must be massive employment generation which will sustain and will be sustained by greater availability of wage goods. It is also essential to augment social consumption and investment with a view to maximizing the efficiency and productivity of vast numbers as well as to improve the quality of their life. The institutional reform and the fiscal policy must be oriented to reduced inequality alongside increased productivity. The backward regions and classes have a high incidence of poverty. Their development must receive high priority. Every effort must be undertaken to carry family planning to the strata who need it most.

"In India, poverty is too big and complex, a problem to be overcome within the span of a single Five-Year Plan. But the compulsions of the present situation dictate that the Fifth Plan should be so oriented as to speed up the process of removing poverty and fulfilling people's expectations. In situations involving massive under-utilization of human resources, a higher growth rate and in increased equality in terms of consumption are mutually compatible objectives if planning and implementation are conceived along appropriate lines. The postulated rate and pattern of growth, the concern for freeing the development process from dependence on foreign aid, the stress on a more effective and integrated population policy, the emphasis on employment opportunities, the provision for a National Programme of Minimum Needs, the accent on uplift of backward classes and development of backward regions, and the envisaged public procurement and distribution system to ensure availability of essential goods to the poorer sections of the population at reasonably stable prices have all been conceived as mutually reinforcing instrument of policy. Removal of poverty over a reasonable period of time is thus a key task which the country must accomplish well within the perspective period."

VI

The Fifth Plan is conceived as the first definitive phase of progress on the path of ushering in a self-reliant poverty-free economy by the end of the perspective period terminating in 1986. The Plan's target is to secure during the next five years a rate of growth of five and a half per cent, which is higher than the rate at which the economy has grown over the Fourth Plan.

The Draft duely recognizes that the absence of a policy-frame indicating co-ordination between instruments and targets had resulted in the past in "less-than-full achievements in the targets and, devises a policy frame presumably as an integrated part of the Plan. The need for this policy-frame derives justification from two specific anomalies of the prevailing situation, namely, the growing incidence of structural disproportionalities on the production side and the existence of a highly skewed distribution of property rights. Accordingly, it takes into account both the long-term objectives of development and the short-terms needs of dealing with a host of problems like the accentuation of the inflationary spiral and under-utilization of productive capacities occasioned especially by paucity of external finance required for procuring inventories. Specifying the nature of policy actions required the Draft Plan notes :

"Instruments of economic policy must consequently cover a wider ground. They fall into four major categories: (a) appropriate allocations of investment outlays to different heads of development in the

plans drawn up for the various public agencies; (b) a package of measures consisting of incentives and disincentives designed to direct the flow of private investment into preferred uses and away from areas of low social profitability; (c) institutional reforms which will release productive forces which would otherwise lie dormant, leading to higher levels of production, and a more equal distribution of the benefits of extra production, and (d) finally, a set of measures which may be described as fiscal and monetary in character which can help the process of development to be carried out in a non-inflationary manner while minimizing the need for administrative actions, wherever they may tend to create unintended distortions in the resource allocation process."

This enunciation of policy measures may be taken to reflect a sense of realism which planning has begun to display in taking note of the needs of the broad masses of people. It remains to hope that this sense of realism will lead to more effective and efficient implementation of development programmes and that shortfalls in the achievement of targets will not recur so frequently as in the past. It is possible that confidence is replacing mere enthusiasm in India's endeavour to develop.

APPENDIX

TABLE I

Selected Economic Indicators for Different Countries of the World

	Area ('000 km)	*Population $ million*	*G.N.P. (U.S. million Dollar)*	*Per Capita National Income (at market prices U.S. $)*
	(1)	(2)	(3)	(4)
1. Afghanistan	647	18	1425	83
2. Algeria	2382	15	3597	259
3. Argentina	2777	24	—	1171
4. Australia	7687	13	37162	2919
5. Bangla Desh	143	—	—	—
6. Brazil	8612	99	40839	422
7. Canade	9976	22	92452	4231
8. China	9597	801	—	—
9. Columbia	1139	22	9573	426
10. Czechoslovakia	128	14	—	—
11. Democratic Peoples' Republic of Korea	121	15	—	—
12. Democratic Republic of Vietnam	159	22	3266	174
13. Egypt	1001	35	6722	202
14. Ethiopia	1222	26	—	75
15. Federal Republic of Germany	249	62	230612	3739
16. France	547	52	175918	3403
17. German Democratic Republic	108	17	—	—
18. Hungary	93	10	—	—
19. India	3280	563	46219	88
20. Indonesia	1492	122	13655	112
21. Iran	165	31	10927	367
22. Iraq	435	10	2547	278
23. Italy	301	54	109971	19 7
24. Japan	372	107	260890	2462
25. Kenya	583	12	1823	151
26. Mexico	1973	53	34362	—
27. Morocco	447	16	3963	250
28. Nepal	141	11	5	74
29. Netherlands	41	13	42109	3159
30. Nigeria	924	58	3925	85
31. Pakistan	804	56	11207	205
32. Peru	1285	14	4424	316

% Share in Gross Domestic Product			Foreign Trade (in U.S. million $)		Per Capita Consumption (in kg.)		
Agriculture	Manufacturing & construction	Others	Exports	Imports	Energy coal equivalent	Steel	Sugar
(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
—	—	—	99	166	38	1	—
—	—	—	852	1221	533	48	16.7
11	35	54	1941	1905	1728	154	44.0
6	39	55	6302	4555	5701	621	46.4
—	—	—	—	—	—	—	—
13	23	64	3990	4723	532	77	41.7
4	32	64	20178	18854	10757	588	47
—	—	—	—	—	567	33	4.5
27	28	45	743	837	610	30	27.8
11	73	16	4915	4662	6844	663	44
—	—	—	—	—	827	57	6.7
31	8	61	13	707	140	5	—
25	25	50	825	899	324	30	15.7
51	15	34	167	189	35	2	—
3	54	43	46208	39763	5396	648	—
6	46	48	25848	26715	4153	456	—
12	71	17	5614	5227	5995	507	41
17	55	28	3292	3154	3279	314	44.8
45	19	36	2404	2220	186	16	7.0
41	22	37	1534	1438	133	6	7.4
19	42	39	2964	2410	954	59	28.5
18	43	39	1184	713	642	47	33.3
8	41	51	18548	19282	2796	379	—
6	44	50	28591	23471	2351	644	30.4
31	18	51	267	497	165	15	16.6
11	34	55	1825	2900	1318	88	40.1
31	28	41	634	768	223	21	29
69	12	19	—	—	15	—	—
7	39	54	16784	16918	5711	370	—
45	19	36	2180	1505	66	10	—
34	19	47	698	682	158	7	10.8
18	36	46	943	791	622	31	31.7

TABLE 1 *(Contd.)*

Selected Economic Indicators for Different Countries of the World

	Area ('000 km)	*Population $ million*	*G.N.P. (U.S. million Dollar)*	*Per Capita National Income (at market prices U.S. $)*
	(1)	(2)	(3)	(4)
33. Phillippines	300	39	9914	254
34. Poland	313	33	—	—
35. Republic of Korea	98	32	9092	281
36. Republic of Vietnam	174	—	—	—
37. Romania	238	21	—	—
38. South Africa	1221	23	17358	743
39. Spain	505	34	42725	1239
40. Sri Lanka	66	13	2082	164
41. Sudan	2506	16	1714	109
42. Thailand	514	36	7003	193
43. Turkey	781	37	12091	335
44. Uganda	236	10	1358	134
45. U.S.S.R.	22402	247	—	—
46. United Kingdom	244	56	139658	2503
47. United Republic of Tenzania	945	14	1339	106
48. United States of America	9363	209	1040190	4981
49. Venezuela	912	11	11905	1085
50. Yugoslavia	256	21	—	—
51. Zaire	2347	23	2326	102

% Share in Gross Domestic Product			Foreign Trade (in U.S. million $)		Per Capita Consumption (in kg.)		
Agricul-ture	*Manufac-turing & construc-tion*	*Others*	*Export*	*Imports*	*Energy coal equi-valent*	*Steel*	*Sugar*
(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
29	20	51	1159	1485	311	20	19.2
19	62	19	4932	5335	4556	422	44.6
29	29	42	1624	2522	2161	105	12.3
31	8	61	—	—	287	10	12.3
22	—	—	2599	2616	3150	374	27.9
10	40	50	—	—	2770	190	40.2
12	33	55	3830	6755	1765	276	29.2
32	17	51	315	337	146	3	18.6
35	16	49	360	353	119	5	17.6
30	25	45	1081	1484	305	23	9.2
26	29	45	885	1508	564	55	21.0
48	11	41	261	114	66	2	14.8
19	63	18	15361	16047	4767	490	43.4
3	37	60	24344	27860	5398	406	52.3
36	16	48	319	364	72	5	—
3	34	63	48999	55310	11611	663	50.3
7	43	50	3797	2277	2473	184	42.1
18	50	32	2237	3233	1610	187	29.3
8	51	41	781	533	86	6	—

TABLE II

Percentage Distribution of Gross Domestic Product at Factor Cost by Industry of Origin at Constant Prices

(At 1960-61 Prices)

	1950-51	*1955-56*	*1960-61*	*1965-66*	*1968-69*	*1970-71*
1. Agriculture	48.8	54.0	49.7	41.4	42.4	42.6
2. Mining & Quarrying	0.9	0.9	1.1	1.4	1.3	1.1
3. Manufacturing	14.6	13.0	14.1	17.5	16.8	16.6
4. Electricity, Gas and Water Supply	—*	0.4	0.6	1.0	1.2	1.3
5. Construction	2.0	3.8	4.5	4.6	4.5	5.4
6. Transport	—	3.4	4.3	5.1	5.1	5.1
1 Railways	18.1**	1.7	2.1	2.5	2.3	2.2
2 Other Transport	—	1.7	2.2	2.6	2.8	2.9
7. Other Services including Communications	15.6	24.5	25.7	29.0	28.7	27.9
8. Gross Domestic Product	100.0	100,0	100.0	100.0	100.0	100.0

*Included in Item 7 (*i.e.,* other services)

**This includes Commerce, Transport and Communications.

TABLE III

Selected Statistical Indicators of Growth

		1950-51	*1954-55*	*1964-65*	*1970-71*
1. National Income at 1960-61 price	Rs. million	92.420	109,170	159,170	1,87,550
2. Population	million	358	397.8[1]	488.7[1]	540
3. Per Capita Income at 1960-61 prices	Rs.	258	274	336	345
4. Income of Agriculture Sector at 1960-61 prices	Rs. million	—	58,990	75,170	83,372
5. 4 as per cent of 1		—	55.8	44.2	44.0
6. Income from Mining and Manufacturing at 1960-61 prices	Rs. million	—	7,890	17,230	20,740
7. 6 as per cent of 1		—	7.5	10.8	11.0
8. Saving as per cent of 1		0.7	8.0	10.7	10.1
9. Net Capital inoflw as per cent of 1		−0.1	0.5	3.3	1.1
10. Investment as percent of 1		5.6	8.5	14.0	11.1
11. Index of Agriculture Output	1949-50=100	95.6	116.8	158.4	182.2
12. Index of Foodgrains Output	,,	90.5	115.3	150.2	182.7
13. Index of Foodgrains Output	per hactare[4]	92.4	103.0	126.3	129.3[2]
14. Index of Industrial Output	1960=100	54.8[3]	72.7	150.9	180.8[3]
15. Index Output of Capital Goods	1960=100	33.2	—	—	224.6
16. Index Output of Basic Metal Industries	1960=100	46.5[6]	53.3	180.0	221.7
17. Imports—Foodgrains	Rs. million	996	685	2821	2030
18. Imports—Others	Rs. million	5506	5878	10669	14222
19. Imports—All	Rs. million	6502	6563	13490	16252
20. Exports—Traditional	Rs. million	4566	4840	5200	6748
21. Exports—Non-traditional	Rs. million	1440	1080	2960	8604
22. Exports—All	Rs. million	6006[6]	5920	8160	15352
23. Per Capita Output of Foodgrains	kg.	143[5]	—	—	197
24. Education—Primary School Enrolment	millions	19.2	23.2	48.2	60.7
25. Education—Middle School Enrolment	millions	3.1	4.0	9.8	14.6
26. Education—Secondary School Enrolment	millions	1.3	2.3	5.4	7.8
27. Education—University Enrolment	millions	0.3	0.3	0.9	2.1
28. Higher Technical Education Admission Capacity :	Diploma No.	6216	—	—	47,000
	Degree No.	4788	—	—	25,000[4]
29. Health	Doctors No.	56000	—	—	109,000
30. Hospital Beds	No.	113,000[6]	—	—	266,200
31. Primary Health Centres	No.	725	—	—	5,183
32. Medical Colleges	... No.	29	—	—	96
33. Life Expectation at Birth	Years	33	—	—	53
34. Literacy Rate	Per Cent	17	—	—	29

[1]1956 and 1966; [2]1968-69; [3]1951 and 1970; [4]1969; [5]1955-56; [6]1951-52.

TABLE IV

Variation in Output of Selected Commodities between 1950-51 & 1972-73

Sector & Item		1950-51	1955-56	1964-65	1970-71	1972-73
Agriculture						
A. *Foodgrains*	million tonnes	54.92	69.22	89.00	108.42	95.20
(a) Cereals	,,	45.74	57.53	76.56	96.60	85.71
Rice	,,	22 07	28.67	39.03	42.23	38.63
Wheat	,,	6.83	8.87	9.86	23.83	24.92
Jowar	,,	6.25	6.73	9.13	8.10	6.44
Bajra	,,	2.67	3.46	3.73	8.03	3.80
Others	,,	7.92	9.80	10.58	14.42	11.92
(b) Pulses :		9.18	11.69	12.44	11.82	9.49
of which Gram :	,,	3.82	5.40	5.79	5.20	4.47
B. *Non-Foodgrains*						
(a) Oilseeds :	,,	5.09	5.63	8.46	9.26	6.71
of which Groundnuts	,,	3.43	3.81	5.89	6.11	3.92
Rapeseed & Mustard		0.77	0.86	1.47	1.98	1.85
(b) Sugarcane (in terms of *Gur*)		6 92	7.29	12.03	12.98	12.64
(c) Cotton	million bales	2.90	4.03	5.66	4.50	5.49
(d) Jute	,,	3.51	4.48	6.02	4.94	4.87
(e) Mesta	,,	0.67	1.17	1.58	1.26	1.16
Mining						
1. Coal	million tonnes	32.8	39.0	64.4	74.3	79.3
2. Iron Ore	,,	3.0	4.3	15.2	22.5	24.0
Metallurgical Industries						
3. Pig Iron	million tonnes	1.69	1.95	6.67	6.99	7.50
4. Steel Ignots	,,	1.47	1.74	6.14	6.14	6.82
5. Finished Steel	,,	1.04	1.30	4.43	4.48	5.08
6. Steel Casting	,,	—	15	55	62	56
7. Aluminium(Virgin metal)	,,	4.0	7.4	55.1	166.8	174.8
8. Copper (,,)	,,	7.1	7.6	9.4	9.3	12.6
Mech. Engg. Industries						
9. Machine-tools	Rs. million	3	8	257	430	626
10. Cotton Textile Mech.	,,	N.A.	40	216	303	64
11. Sugar Mill Machinery	,,	—	2	89	139	45
12. Cement Machinery	,,	—	4	21	42.0	39
13. Paper Mill Machinery	,,	—	—	15	—	—
14. Railway Wagons	('000)	2.9	15.3	23.7	11.1	10.8
15. Automobiles (Total)	,,	16.5	25.3	70.9	87.9	89.6
(i) Commercial Vehicles	,,	8.6	9.9	36.9	41.2	39.3
(ii) Passenger Cars	,,	7.9	15.4	34.0	46.7	50.3
16. Motor-cycles and Scooters	,,	—	0.9	37.4	97.0	115.7
17. Power Driven Pumps	,,	35	37	188	159	287
18. Diesel Engines(Stationary)	,,	5.5	10.4	74.1	65.7	93.5
19. Diesel Engines(Vehicular)	,,	—	—	8.2	3.2	2.2
20. Bicycles	,,	99	513	1422	2042	2383
21. Sewing Machines	,,	33	111	338	235	340
Elect. Engg. Industries						
22. Power Transformer	'000 kva	179	625	3593	8086	9440

TABLE IV (Cond.)

Variation in Output of Selected Commodities between 1950-51 & 1972-73

Sector & Item		*1950-51*	*1955-56*	*1964-65*	*1970-71*	*1972.73*
23. Electric Motors	'000 h.p.	99	272	1430	2721	2789
24. Electric Fans	'000	199	287	1272	1716	2434
25. Electric Lamps	million	14.0	25.0	68.0	119.3	150.6
26. Radio Receiver	'000	54	102	511	1794	1827
27. Electric Cables & Wires :						
(i) Aluminium Conductors	'000 tonnes	1.7	9.4	48.8	64.2	78.1
(ii) Bare Copper Conductors	,,	5.0	8.7	5.3	0.7	1.0
Chemical and Allied Industries						
28. Nitrogenous Fertilizers	'000 tonnes of N	9	80	234	830	1059
29. Phosphatic Fertilizers	'000 tonnes of P_2O_5	9	12	132	229	325
30. Sulphuric Acid	'000 tonnes	101	167	695	1053	1206
31. Soda Ash	,,	45	82	287	449	486
32. Caustic Soda	,,	12	36	192	371	397
33. Paper and Paperboard	,,	116	190	493	755	733
34. Rubber Tyres and Tubes :						
(i) Automobile Tyres	million	—	0.90	2.16	3.79	4.34
(ii) Automobile Tubes	,,	—	0.80	2.19	3.45	4.29
(iii) Bicycle Tyres	,,	—	5.80	16.45	19.20	19.63
(iv) Bicycle Tubes	,,	—	5.69	16.06	13.81	13.69
35. Cement	million tonnes	2.73	4.67	9.78	14.4	15.5
36. Refractories	'000 tonnes	237	293	702	683	773
37. Refined Petroleum Products	million tonnes	0.2	3.4	8.5	17.1	17.8
Textile Industries						
38. Jute Textiles	'000 tonnes	837	1071	1292	958	1074
39. Cotton Yarn	million kg.	534	744	968	929	972
40. Cotton Cloth (Total)	million meters	4215	6260	7744	7596	7924
(i) Mill Sector	,,	3401	4665	4675	4055	4224
(ii) Decentralized Sector	,,	814	1595	3069	3541	3700
41. Rayon Yarn	'000 tonnes	2.1	13.5	71.8	98.1	113.0
42. Art Silk Fabrics	million tonnes	287	331	839	947	918
43. Woollen Manufactures :						
(i) Woollen Worsted Yarn	million kg	4.7	4.5	4.2	—	—
(ii) Woollen Worsted Fabric (wearable)	million metres	2.4	2.3	3.0	—	—
Food Industries						
44. Sugar	'000 tonnes	—	—	—	3740	—
45. Tea	million kg	92	163	164	421	453
46. Coffee	'000 tonnes	24.1	9.1	7.4	72.7	73.2
47. *Vanaspati*	'000 tonnes	104	97	80	558	581
Electric Energy Generated :	billion kwh	7.8	8.0	8.8	55.8	63.6

TABLE V

Sectoral Distribution of Plan Investment Outlays*

(Rs. in million)

	First Plan	*Second Plan*	*Third Plan*	*Annual Plans*	*Fourth Plan*	*Fifth Plan*
1. Plan outlay—public sector	19,600	46,720	85,765	66,167	167,740	372,500
Agriculture and Irrigation	7,240	9,790	17,536	14,414	34,660	74,110
Power	1,488	4,520	12,523	12,099	24,480	61,900
Mining and Manufacturing	968	11,250	19,671	16,365	37,290	89,390
Transport and Communication	5,178	12,610	21,117	12,223	38,870	71,150
Education, Health, other Social Services, and Miscellaneous	4,726	8,550	14,918	11,066	32,440	75,950
2. Total investment	33,600	67,500	1,04,000	93,360	—	4,75,610
Public Sector	14,600	34,500	63,000	56,060	—	3,14,000
Private sector	19,000	33,000	41,000	37,300	89,800	1,61,610

*Fifth Plan outlays are gross, while rest are net.

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